DOCUMENT RESUME

ED 129 860 95 TM 005 621

AUTHOR Cohen, Arthur M.; Solmon, Lewis C.
TITLE Cooperative Education--A National Assessment: An Annotated Bibliography.
INSTITUTION Applied Management Sciences, Inc., Silver Spring, Md.
SPONS AGENCY Office of Education (DHEW), Washington, D.C. Office of Planning, Budgeting, and Evaluation.
PUB DATE Feb 76
CONTRACT 300-75-0263
NOTE 326p.

EDRS PRICE MF-$0.83 HC-$18.07 Plus Postage.
DESCRIPTORS *Annotated Bibliographies; *Cooperative Education

ABSTRACT

This review of the literature is divided into two parts--relevant and highly relevant documents. Abstracts of 90 relevant and 44 highly relevant studies are included. Applied Management Sciences' staff members were responsible for the preliminary identification, collection, and categorization of the literature. Most of the abstracts in the highly relevant category have individual critiques appended. The documents to review were selected from an extensive literature search and were categorized according to their apparent importance and usefulness in assisting in the design of a major study of cooperative education. The documents in both relevant and highly relevant categories have been further subdivided into six sets: program description, evaluation, and impact; commentary and exhortation; feasibility studies; across-program assessments, methodological concerns, and bibliographies and guidelines. (RC)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED129360

Cooperative Education -
A National Assessment:
An Annotated Bibliography

February 1976

Prepared for:

Office of Planning, Budgeting and Evaluation
Office of Education/DHEW

Under Contract:
OEC 300-75-0263

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRO-
DUCED EXACTLY AS RECEIVED FROM
THE PERSON OR ORGANIZATION ORIGIN-
ATING IT. POINTS OF VIEW OR OPINIONS
STATED DO NOT NECESSARILY REPRE-
SENT OFFICIAL NATIONAL INSTITUTE OF
EDUCATION POSITION OR POLICY

Authors

Arthur M. Cohen, Ph.D.,
Center for the
Study of Community Colleges

Lewis C. Solmon, Ph.D.,
Center for the
Study of Community Colleges

Editors

Steven Frankel, Ed.D.,
Applied Management Sciences

Robert L. Morgan, Ph.D.,
Applied Management Sciences

George Kettner,
Applied Management Sciences

APPLIED
MANAGEMENT
SCIENCES

TM005 621

Cooperative Education - A National Assessment: An Annotated Bibliography

February 1976

Prepared for:

Office of Planning, Budgeting and Evaluation
Office of Education/DHEW

Under Contract:
OEC 300-75-0263

Authors

Arthur M. Cohen, Ph.D.,
Center for the
Study of Community Colleges

Lewis C. Solmon, Ph.D.,
Center for the
Study of Community Colleges

Editors

Steven Frankel, Ed.D.,
Applied Management Sciences

Robert L. Morgan, Ph.D.,
Applied Management Sciences

George Kettner,
Applied Management Sciences

962 Wayne Avenue • Suite 701 • Silver Spring, Maryland 20910
Telephone 301 585-8181

APPLIED MANAGEMENT SCIENCES

EDITORS' PREFACE

This document is the first product of the National Assessment of Postsecondary Cooperative Education Project which Applied Management Sciences is conducting for the Office of Planning, Budgeting and Evaluation (OPBE) of the U.S. Office of Education.

Probably the largest and most comprehensive study of cooperative education funded to date, this study will encompass over 15,000 respondents affiliated with coop programs on 96 different college campuses.

As part of this comprehensive study, it was first necessary to conduct a literature search in order to take full advantage of the research conducted in this area to date. The literature search, conducted by Applied Management Sciences personnel, consisted of obtaining and rating according to relevance every document in the Northeastern University's Clearinghouse on Cooperative Education; examining more than 1,000 document abstracts of ERIC (Educational Resources Information Center) and AIM/ARM (Data base of the Center for Vocational and Technical Education at Ohio State University) holdings; examining other articles of apparent interest to the study cited in the Education Index, The Guide to Periodical Literature, and Dissertation Abstracts since 1970; and examining the holdings of several university libraries, the National Institute of Education Library, and the Library of Congress. Other publications were identified as being of potential interest by staff members of our two subcontractors, the Institute for the Study of Human Resources (Pennsylvania State University), and the Center for the Study of Community Colleges (University of California at Los Angeles).

In all, more than 2,000 documents and citations were examined and given preliminary ratings by Applied Management Sciences staff. The 400 most promising documents were given a critical reading by senior personnel from the same organization.

The same rating schema was used for both the preliminary and critical reviews and each holding was evaluated as being:

- highly relevant - containing elements directly applicable to the study
- relevant - containing some information of potential use
- not relevant - containing little or no information of use to the project

It should be emphasized that the ratings assigned to individual articles or books related solely to the document's potential utility to the project. In many cases, as the critiques in this volume attest, they bear no relationship to the overall quality of the document. Instead, relevance was determined by the degree to which articles addressed five areas of emphasis in this study. Specifically, these were:

(1) Descriptions of cooperative education program structures, resources, strategies and policies

(2) Discussions of cooperative education cost-benefit analysis issues

(3) Assessment of the effectiveness of Federal funding for cooperative education

(4) Assessment of the national potential for cooperative education

(5) Assessment of cooperative education as a component of career education and recurrent educational programs

When the screening and rating process were completed, the complete set of articles rated highly relevant (44 in number) and relevant (90 in number) were sent to the Center for the Study of Community Colleges in Los Angeles for review. Each document was abstracted by a member of the subcontractor's staff. The highly relevant documents were also critiqued by a senior staff member and a signed review of each of these documents was appended to its abstract.

This publication contains that set of abstracts and signed reviews. It was commissioned so that the credibility of the literature of potential use to our staff could be dispassionately evaluated by a disinterested third party. It is being disseminated in order to provide the same type of assistance to other researchers seeking reliable data in this field.

It should be emphasized that the critiques contained in this publication represent only the opinion of the reviewer signing a particular critique. The critiques were not censured or modified by either Applied Management Sciences or the U.S. Office of Education and all such comments can be construed as representing only the expert opinions and judgments of the Center for the Study of Community Colleges' staff and not those of either Applied Management Sciences or the U.S. Office of Education.

It is our feeling that a publication of this genre can make a valuable contribution to educational research as a means of saving researchers from trodding over ground that has already been covered. As such, we would be very interested in hearing from researchers about the utility of this publication and how the structure of similar products might be modified in future efforts.

Steven Frankel, Ed.D.
Robert Morgan, Ph.D.
George Kettner

TABLE OF CONTENTS

Executive Summary for the Cooperative Education Literature Review - Arthur M. Cohen and Lewis C. Solmon x

Section I: Highly Relevant Materials*

Feasibility Studies:I 1

1. A Progress Report on the Study on the Feasibility of Cooperative Education at the University of Rhode Island - Albert U. Carlin 2
2. Study of Cooperative University-Community Programs - Gladys W. Gruenberg 6
3. A Study of Cooperative Occupational Education for the Maricopa County Junior College District - Donald D. Hiserodt 10
4. Cooperative Education at UMES: Report of the Faculty Community - Shekhar S. Kaup 14

Program Description, Evaluation and Impact: I 17

5. Preventing Students from Dropping Out - Alexander W. Astin 18
6. Community College Vocational Cooperative Education: Exemplary Project in Vocational Education Conducted Under Part D of Public Law 90-576. First Annual Report, Second Annual Report, Final Report 21
7. New Horizons in Cooperative Education: Project Report 24
8. Cooperative Education: Program Study - James B. Cunningham 27
9. An Evaluation of the Langley Research Center Cooperative Education Program. A Report on Research Conducted under the NASA-ASEE Faculty Fellow Program - Donald W. Jarrell 30
10. "Highlights of Cooperative Student Opinion Survey" - Joel Pitcoff and Fred Bordsky 34
11. "The Influence of Participation in the Cooperative Program on Academic Performance" - Stuart H. Smith, Jr. 36
12. "A Comparison Study of the Academic Progress of the Cooperative and the Four-Year Student" - Ray S. Lindenmeyer 38
13. Attitudes, Persistence, and Performance of Cooperative Work Experience Students - Richard W. Brightman 40

---

*Each Highly Relevant abstract, or group of abstracts has a critique directly following it.

TABLE OF CONTENTS (cont.)

Commentary/History: I 43

14. Report to the Congress: What is the Role of Federal Assistance for Vocational Education? - Comptroller General of the United States 44

15. Documented Employer Benefits from Cooperative Education. The Report of a Study for Northeastern University. 49

16. Crisis in Cooperative Education - Richard Holden 52

17. An Introduction to Career Education. A Policy Paper of the Office of Education (DHEW). - Kenneth B. Hoyt 55

18. Fifty Views of Cooperative Education - Donald C. Hunt 59

19. "Vocational and Career Education: A Critique and some New Directions - David Rogers 63

20. "Report of the Study of Work Experience Programs in California High Schools and Junior Colleges" - Henry T. Tyler 68

21. Data Analysis Report: An Assessment of School-Supervised Work Education Programs - A. J. Cohen and S. M. Frankel 74

Studies--Across Programs: I 79

22. Cooperative Education Planning Study, Final Report - Consad Corp. 80

23. Cooperative Education Planning Study: Annotated Bibliography 83

24. The Process and Products of T & I High School Level Vocational Education in the U.S. - Max U. Eninger 85

25. Vocational Education and Urban Youth: A Follow-up Study of 1968, 1971 and 1972 Graduates of the Public Schools of the District of Columbia, Final Report - Douglas S. Katz, Robert L. Morgan, and D. W. Drewes 90

26. The Role of the Secondary Schools in the Preparation of Youth for Employment - Jacob J. Kaufman, et al. 94

27. Cost Effectiveness of Selected Cooperative Vocational Education programs as Compared with Vocational Programs without a Cooperative Component, Final Report - Daniel Molnar, Robert N. Pesut, and Joseph A. Mihalka 98

TABLE OF CONTENTS (cont.)

28. "Survey of Cooperative Education, 1969" - James W. Wilson 102

29. "Survey of Cooperative Education, 1970" - James W. Wilson 105

30. "Survey of Cooperative Education, 1971" - James W. Wilson 109

31. "Survey of Cooperative Education, 1972" - James W. Wilson 112

32. "Concerns and Issues of Cooperative Education. Survey of Cooperative Education, 1973" - James W. Wilson 114

33. "Survey of Cooperative Education, 1974" - Sylvia J. Brown and James W. Wilson 117

Evaluative Studies: Method and Theory: I 120

34. "Program Continuation After Federal Funding and Selected Program Variables" - James W. Wilson 121

35. *Cost-Benefit Analysis and Manpower Programs* - Steve L. Barsby 124

36. *Evaluating the Impact of Manpower Programs* - Michael E. Borus 128

37. *Program Cost Analysis in Educational Planning* - Sue A. Haggart 132

38. *A Cost-Effectiveness Study of Vocational Education* - Teh-weh Hu, Mau Lin Lee, Ernst W. Stromsdorfer, and Jacob J. Kaufman 136

39. *Process Model for the Development of a Cooperative Education Program* - Aaron Lucas 140

40. "Cost-Benefit Analysis: A Survey" - A. R. Prest and R. Turvey 143

41. "The After Effects of Cooperative Education" - Harold P. Rodes 146

42. *Review and Synthesis of Cost-Effectiveness Studies of Vocational and Technical Education* - Ernst W. Stromsdorfer 148

43. *Cost-Benefit Analysis and the Economics of Investment in Human Resources: An Annotated Bibliography* - W. D. Wood and H. F. Campbell 154

44. "Benefit-Cost Analyses of Occupational Training Programs: A Comparison of Recent Studies" - Einar Hardin 158

TABLE OF CONTENTS (cont.)

Section II: Relevant Materials

Feasibility Studies: II 163

1. Alternate Cooperative Education for Two-Year Quarter System Colleges: Feasibility Res. and Prog. Des. - S. Davidson and M. Shoenhair 164

2. "Cooperative-Distributive Education: An Alternate Semester Program" - Robert L. Bennett 165

3. Cooperative Education and the Community Colleges in New Jersey - Roy L. Wooldridge 166

Program Description, Evaluation and Impact: II 168

4. Model Book for the Cooperative Education Program at Santa Fe (Florida) Community College - Angelo V. Abbott 169

5. "A Descriptive Study of Co-op/Non Co-op Attitudes towards the Concomitant Segments of the World of Work" - John Michael Baker 171

6. Cooperative Work Experience Education - A Study in Success: Twenty-Six to Forty Years Later - L. O. Brockmann 172

7. "The Awarding of Academic Credit for Off-Campus Work Experience" - Sylvia J. Brown 173

8. "An Examination of the Federal College Work-Study Program at Monterey Peninsula College" - William Bobrow 174

9. "A Study of Cooperative Education in Florida Community Colleges" - William D. Ceely 176

10. The Costs of Vocational and Nonvocational Programs: A Study of Michigan Secondary Schools - Elchanan Cohn, Teh-Wei Hu, and Jacob J. Kaufman 178

11. Cooperative Education in the San Mateo Junior College District: A Two Year Demonstration Project in Community College Cooperation 180

12. Cooperative Work Experience Project Report - Volume 1 - Mt. Hood Community College 181

13. "Attitudes and Abilities of Cooperative Students" - Robert S. Davie and James K. Russell 183

14. Worker Adjustment Problems of Youth in Transition from School to Work - Steven M. Garbin, et al. 184

15. Effectiveness of Model Office, Cooperative Education, and Office Procedures in Developing Office Decision-Making Abilities, in Changing Perceptions of the Office World of Work, and in Developing a Knowledge of Business Fundamentals and General Business Information - Charles R. Hopkins and Gary N. McLean 185

TABLE OF CONTENTS (cont.)

16. A Study of the Status and Effectiveness of Cooperative Office Education in New Jersey, 1968-69 - Carmela C. Kingston 186

17. To Determine If a Relationship Exists Between Success on the Job and How Students Rate the Overall Cooperative Education Program - Lynn D. Lomen and Robert S. Standen 188

18. "A Comparison of Academic Achievement Between Cooperative Education Students and Non-Cooperative Education Students at College of the Mainland" - Dorothy E. McNutt 189

19. "Cooperative Education at Los Angeles Pierce College" - Tom Nolan 190

20. "An Evaluation of Part G Cooperative Vocational Education Programs in Selected High Schools in the State of Tennessee" - Ruth D. Richardson 192

21. "Cost Benefit Analysis of Vocational-Technical Education Programs in Missouri Junior Colleges" - William B. Richardson 194

22. "The Rock Valley College Career Advancement Program" 196

23. "Motivation and Job Satisfaction on the Work Term of Cooperative Students" - Patricia M. Rowe 197

24. School, Community, and Youth: Statewide Evaluation of Part G Programs in Cooperative Vocational Education in the State of Illinois/ 1971-72 199

25. Cooperative Education at LaGuardia Community College: An Assessment and Description of the Initiation of an Innovative Curriculum--Final Report - Soper Associates 200

26. An Economic Analysis of the Work Experience and Career Exploration Program: 1971-1972 School Year, Final Report - Ernst W. Stromsdorfer 201

27. An Economic and Institutional Analysis of the Cooperative Vocational Education Program in Dayton, Ohio - Ernst W. Stromsdorfer 202

28. "An Economic Analysis of Vocational Education in New York High Schools" - Michael K. Taussig 203

29. "A Study to Identify and Describe the Characteristics of the Cooperative Education Programs for the Disadvantaged in Michigan" - Delores W. Taylor 204

TABLE OF CONTENTS (cont.)

30. Impact of Cooperative Education upon Personal Development and Growth Values: Final Report to the Braitmayer Foundation - James W. Wilson 206

31. Analysis of Student Employment in a Cooperative Program - Roy L. Wooldridge 208

32. "The Social Rate of Return on Investment in Vocational Education: A Case Study in a Rural Appalachian Ohio Community" - Keith W. Yackee 209

Commentary/History: II 210

33. The Role of Postsecondary Occupational Education - American Vocational Association 211

34. "Cooperative Education in the Junior Colleges" - Joseph E. Barbeau 212

35. "A Corporate View of Cooperative Education and Its Usefulness from an Economic and Training Viewpoint" - Roy H. Beaton 214

36. Cooperative Education: Conception to Credibility - Louis W. Bender, et al. 216

37. "Graduate Study: A New Approach Through Cooperative Education" - Alvah K. Borman 217

38. The Potential of Career Education: A Sociological Perspective - Ivan Charner 219

39. "Cooperative Office Education: Its Evolution in the Secondary Schools of the United States from 1900-1969" - Audrey Bell Donley 221

40. "Higher Education Over the Next Decade - The Role of Cooperative Education" - Edgar D. Draper 222

41. "Cooperative Programs; Advantages, Disadvantages, and Factors in Development" - Rupert N. Evans 224

42. "An Overview of Federal Government Policies Regarding Cooperative Education" - Stephen M. Kane 226

43. Notes and Working Papers from the National Conference on Cooperative Education: Implications of the 1968 Amendments - Minnesota University 228

44. "The Response of Vocational Education to Labor Market Changes" - Gerald G. Somers 229

TABLE OF CONTENTS (cont.)

Studies--Across Programs: II 230

45. Equity and Efficiency Effects from Manpower Programs - Corry F. Azzi 231

46. "Nonwage Benefits of Vocational Training: Employability and Mobility" - Roger L. Bowlby 233

47. "A Comparative Study of the Evaluation of Collegiate Cooperative Education Coordinator Functions" - William Albert Buttery 235

48. Benefit/Cost Estimates for Job Corps, Discussion Papers - Glen G. Cain 236

49. "The Decision to Invest in Vocational Education" - Arthur Corranzini 237

50. "A Cost-Benefit Analysis of Training Programs in Kansas' Fourteen Vocational Area Schools" - Jack B. DeVore 238

51. General and Vocational Work Experience Education Programs Management System: Career Development Programs - San Mateo Union High School District 240

52. "Co-op Versus Non Co-op Revisited" and "While on the Subject of Cooperative Education" - George J. Gore 241

53. "Work Experience Education Programs in California: Status and Appraisal" - Glenn E. Hayes 243

54. "Economic Returns to Vocational and Comprehensive High School Graduates" - Teh-wei Hu, Maw Lin Lee, and Ernst W. Stromsdorfer 244

55. The High School Diploma: Credential for Employment? Final Report - Jacob J. Kaufman and Morgan V. Lewis 245

56. The Potential of Vocational Education: Observations and Conclusions Based on a Study of Three Selected Cities in Pennsylvania - Jacob J. Kaufman and Morgan V. Lewis 247

57. "The Short Range Opportunity Cost At Selected Institutions for Male Students Who Successfully Complete a Five-Year Cooperative Educational Degree Program" - Robert B. Kimmel 249

58. Concurrent Work-Education (Programs in the 50 States 1956-66), Initial Draft - William John Schill 251

59. "The Human Costs of Part-Time Day Release" - Ethel Venables 253

TABLE OF CONTENTS (cont.)

60. "Study of Cooperative Education" - James W. Wilson 254

61. Work-Study College Programs: Appraisal and Report of the Study of Cooperative Education - J. W. Wilson 256

Evaluative Studies: Method and Theory : II 258

62. "An Application of Cost-Benefit Analysis to the Work-Experience Program" - Worth Bateman 259

63. The Economics of Education - Elchanan Cohn 261

64. "Survey of Present Methods of Follow-up of Public Post Secondary School Graduates in Cooperative and Preparatory Vocational Programs and Development of a Follow-up Procedure" - Maurice L. Goff 263

65. Economic Aspects of Manpower Training Programs: Theory and Policy - Daniel S. Hamermesh 264

66. "A Benefit-Cost Analysis of Selected Vocational Programs in Florida" - Marshall A. Harris 266

67. Program Budgeting and Benefit-Cost Analysis: Cases, Texts, and Readings - Harley Hindrichs and Graeme M. Taylor 268

68. Dimensions of Manpower Policy: Programs and Research; A Volume Commemorating the Twentieth Anniversary of the W. E. Upjohn Institute for Employment Research - Sar A. Levitan and Irving H. Siegel 269

69. "A Proposed Normalization Procedure for Public Investment Criteria" - E. J. Mishan 271

70. "Determinants of Rates of Return to Investment in On-the-Job Training" - Dale Bruce Rasmussen 272

71. Cost Benefit Analysis--Trade and Technical Education, Final Report - Bruce Reinhart and Glen H. Blomgren 274

72. "Learning and Experinece in the Labor Market" - Sherwin Rosen 275

73. "A Comparison of Two Methods of Preparing Youth for Employment: Cooperative Occupational Education Versus the Preparatory Vocational-Technical School" - Lester Earl Sanders 276

74. A Supply-Demand Model for Vocational-Education Planners: Post-Secondary Instructional Program/Occupational Matrix Phase 2. Report No. 1. Vocational-Technical Research Report - John Senier and Thomas E. Enderlein 278

TABLE OF CONTENTS (cont.)

75. "The Opportunity Cost of Participating in a Training Program" - Ralph E. Smith 280

76. Evaluations of the War on Poverty: The Feasibility of Benefit-Cost Analysis of Manpower Programs - Harry R. Woltman and William W. Walton 282

Guidelines: II 283

77. "How to Design a Cooperative Program" - Wendell Bodden, et al. 284

78. Cooperative Education - Robert L. Brown 286

79. A Selected Bibliography of References to Cooperative Education in Two-Year and Four-Year Colleges and Universities - Roland H. Brownlee 288

80. Volunteer Industry Involvement in Public Education - Samuel M. Burt and Leon M. Lessinger 289

81. Developing Work-Study Programs for Potential Dropouts: A Manual (SUNY) 291

82. Program Guide: A Guide for Development and Operation of A Secondary School Allied Health Career Program - Jerome Epstein 292

83. A Selected and Annotated Bibliography Related to Cooperative and Project Methods in Distributive Education - Edward T. Ferguson (ed.) 293

84. Case Studies of Fifty Representative Work Education Programs - Steven M. Frankel, et al. 294

85. Cooperative Education in Community Colleges: A Sourcebook for Occupational and General Educators - Barry Heerman 295

86. Handbook of Cooperative Education - Asa Knowles and Assoc. 296

87. Post-Secondary Cooperative Education Abstracts - James Smiley and Wesley Budke (Comps.) 297

88. Cooperative Industrial Education: All Purpose Manual - John Wanat 298

89. Review and Synthesis of Literature on Job Training in Industry - Robert E. Wenig and William D. Wolansky 299

90. Work Experience Education: A Handbook for California Secondary Schools - California State Dept. of Education 301

Executive Summary for the Cooperative Education Literature Review

Arthur M. Cohen Lewis C. Solmon
Center for the Study of Community Colleges
October 1975

This review of the literature is divided into two parts--relevant and highly relevant documents. Abstracts of 90 relevant and 44 highly relevant studies are included. Applied Management Sciences' staff members were responsible for the preliminary identification collection, and categorization of the literature. Most of the abstracts in the highly relevant category have individual critiques appended. The documents to review were selected from an extensive literature search and were categorized according to their apparent importance and usefulness in assisting Applied Management Sciences in the design of a major study of cooperative education.

It is rare for a study of a program other than cooperative education to be useful for the evaluation of specific coop education programs or for designing future studies. On the other hand, for the purpose of designing a methodology to evaluate current and future programs, we can spread our net somewhat wider and provide reviews of cost-benefit evaluations of programs that are similar but not specifically on coop education. The elements in the design of other evaluations of different types of programs can be useful in providing an evaluation framework for cooperative education.

Since very little has been done on this subject, and even less has been done well, we reviewed a number of studies of vocational education which were only indirectly relevant to the specific goals of the study. Moreover, we have reviewed studies that are even more remote which perform cost-benefit analysis of projects less related to coop education than vocational education is. In addition, a few documents were categorized as "highly relevant" by Applied Management Sciences' staff, even though these were very difficult to review in the customary manner. Hence we are referring to collections of papers, conference volumes, and annotated bibliographies.

The documents in both relevant and highly relevant categories have been further subdivided into six sets: program description, evaluation, and impact; commentary and exhortation; feasibility studies; across-program assessments, methodological concerns, and bibliographies and guidelines.

Most of the documents assessing single programs use a data-gathering methodology that involves interviews with--or mailed surveys of--program heads and other campus personnel and representatives of business and industry. The questions asked revolve around the issue of whether or not the respondent thinks cooperative work experience is a good idea and what benefits may be derived from it. These assessments also make tabulations based on existing data regarding the number of students who stay in the program, stay in school, get jobs, and so forth. Frequently, follow-up questionnaires are sent to students who have been through the program in order to ascertain these same data. Many of the single program studies are run by program heads themselves--a circumstance which calls into question the impartiality of the research.

The studies that assess effects of more than one program are typically run by researchers who may be as partial as the program heads or who may be objective. Many of these studies suffer straightforward methodological failings: insufficient sample; failure to account for non-respondents; inadequate validation of the survey instrument; conclusions that are not warranted by the data. Only a few broad-scale studies were worth perusing carefully because these methodological concerns have been worked out.

The program commentaries and exhortations are blatantly political documents written--usually by program heads--to gain intramural or extramural support. In them, the programs' purposes, justification, costs, and apparent benefits are discussed. These were reviewed because they provide information on the scope of individual programs and taken together, they offer a picture of the current state of cooperative education.

Many of the hortatory statements call for more and better cooperative programs and for evaluation of those that are operating. Some of the papers in this category deal directly with methodological concerns in program evaluation and are accordingly useful documents. But in most, the purposes of the programs that are called for are not translated into specific measurable goals. Hence, program assessment is made difficult because many of the purposes are overlapping, unmeasurable, or indeed contradictory.

The feasibility studies are reports of research done to assess the likely points of support and resistance in introducing cooperative education programs in an institution. The methodology employed in these studies is typically a questioning of faculty and other campus personnel and employers in the local area. The campus people are asked if they would support such a program; the businessmen are asked if they would provide work stations for students enrolled.

Frequently these feasibility studies also interview students in fields that may overlap with the cooperative offerings. Few of these studies are useful because of their parochialism and their predetermined conclusions. Rare is the feasibility study that concludes the unfeasibility of the proposal. The researcher who sets out to demonstrate feasibility starts with biases difficult to overcome. His designs are almost invariably limited and his major recommendations typically could have been made if he had never done the study.

Of similar limited utility are the broad surveys of program heads. Some of these types of studies have been done on an annual basis and we can learn the magnitude of cooperative education but not its effectiveness. Program heads are notoriously bad reporters and the researcher who expends great effort in obtaining responses from them is not rewarded with information that is of much use .

It is difficult to do much with bibliographies, sets of guidelines for program introduction, and conference reports. To critically review an annotated bibliography is virtually impossible; the most that can be said is that it does or does not seem to be complete.

We feel that the executive summary is not the place to summarize, again, the studies which we have summarized in the body of this report. Rather, we intend to review some of the general methodological issues which we have uncovered during our critical reviews. We found it difficult to criticize the methodology of the studies unless the goals of the programs being reviewed are clearly explicated. In particular, various goals of cooperative education programs may be conflicting, and so a program which achieves certain goals may not achieve others. For example: certain coop education programs aim to get the students jobs upon graduation. Others might be more demanding in that they intend that students get jobs utilizing their classroom training or the training they have accrued while working during school. On the other hand, other cooperative education programs seek merely to provide credit for working experience of students which will serve to satisfy some of the graduation requirements. Hence, certain programs might be deemed successful if the students involved get jobs, but others might not be deemed successful unless the jobs obtained after graduation have some specific characteristics. Unless the evaluation of a program can state the goals clearly, it is very difficult to understand whether the program can be deemed a success. Few of the studies we analyzed provided adequate information on the nature of the jobs held by cooperative education students. In particular, we would have liked more detail on whether the jobs were related either to the substance of the courses taken in school or to the job or career obtained upon graduation.

A second general criticism of the literature is that most of the studies we reviewed focused on students who were more or less successful participants in the cooperative education program. That is, evaluation was based on the experiences of students who were able to participate. We saw very little discussion of the ability of the program to find satisfactory jobs for all students interested in cooperative education or for all students who should have been interested. Did those running the cooperative education programs seek out all the students who potentially could have benefited from the programs? Were all those students in the programs the ones who could have benefited most from them? Did certain students who wanted to participate in cooperative education programs find themselves excluded either because of inadequate guidance and counseling or because of inadequate job opportunities uncovered by program directors? If some students who might have benefited from the programs were excluded, what were the reasons? Was it inadequate funding or poor efforts on the part of the program operators?

We would have preferred to see more evaluation of the operation of cooperative education programs alongside evaluation of the experiences of students actually participating in them. Similarly, full-scale evaluations of cooperative education programs might have looked not only at the benefits to those participating, but also at the costs of the programs and the ways money was spent in cooperative education programs. For example, we do not believe it is adequate to indicate that benefits were greater than costs or the rate of return to cooperative education programs, (however measured,) were relatively satisfactory. A more basic question is whether the return rates were as high as they might have been if spending of available funds were done with maximum efficiency.

Another issue frequently coming up in the studies we reviewed was the question of the group to whom cooperative education students should be reasonably compared. The outcomes usually observed were type of job obtained, salary, and even job satisfaction. Given levels of these variables for cooperative education students, the question arises of whether or not the cooperative education experience was the best one for those involved. The general methodology employed was to compare the labor market outcomes of students in coop education programs with similar outcomes for students in non-coop programs of postsecondary education or students in vocational programs in high school and in college with or without a cooperative education component.

However, it should be obvious that it is always possible to identify a group for a comparison whose experiences and resultant outcomes are less satisfactory than the group being studied. When coop students are compared with others, adequate justification must be provided as to why the comparison group was selected.

One of the studies we reviewed compared vocational and technical education curriculum graduates with graduates from other high school curricula who also entered the labor market. Now it is quite clear that vocational students have been pointing throughout their secondary school education toward a job upon their graduation. On the other hand, the students in nonvocational high school curricula who enter the labor force are probably less prepared to go directly from high school to work primarily due to their own earlier plans. To conclude that vocational education students do better in the labor market than nonvocational education students is stacking the deck in favor of vocational education. Similarly, a study of postsecondary cooperative education which compares its graduates with those in less vocationally-oriented fields regarding the types of jobs obtainable upon graduation is also stacking the deck. We did not uncover adequate sampling of students which would enable proper comparisons between coop education students and a similar group of students in non-coop programs who might be deemed to have the same labor market opportunities except for the cooperative educational experiences.

The real question is what control group is appropriate for students in postsecondary cooperative education programs. Is it persons with vocational education in high school? Is it persons with cooperative education experiences in high school? Is it with a similar group of students in non-cooperative postsecondary programs? In the latter case, should the coop students be compared only to those with the same majors but without a cooperative component or with all non-coop college students?

Another aspect of the impact of cooperative education programs is the set of benefits to others than the students in the programs. There have been allegations that employers benefit from their experiences with cooperative education students, and some of these benefits are subsequently reflected by benefits to other members of the community. It is difficult to criticize programs for not resulting in benefits or outputs which were not intended from the outset. On the other hand, it is useful to identify what might be called side effects or unintended benefits which accompany the anticipated impacts of particular programs. However, in order to differentiate between intended and unintended effects, we revert back to our earlier point that the goals of the program and the anticipated effects need be much more explicitly stated.

What is useful in cooperative education? It is difficult to discern generally applicable principles, but the transition from school to work is almost assuredly smoothed through cooperative education. Any process that helps introduce young people to work, that assists in job placement, that mollifies relations with employers, must be useful. No one can argue that cooperative education hinders this transition; by definition this is what it is.

Students seem uniformly to appreciate the attention given to their work experiences through the cooperative programs--a form of integration typically not otherwise seen in academia. Perhaps cooperative education is the comprehensive commuter colleges' answer to the don.

However, determining the precise benefits of cooperative education or the efficiency of single programs or types of programs is another matter. Here studies must draw upon the express purposes of the program as translated into measurable objectives and determine how well the individual program is meeting it's own objectives. This is where nationwide studies of the precise effects of groups of programs as a generic type can fall short. Individual programs may have different objectives depending on the type of institution in which they are located, the program director's predilections, the nature of the employing industries in the immediate vicinity, and the market conditions for certain types of trained employees. To say that people who have been in cooperative education programs stay on the job longer or earn more money is not necessarily to come to grips with the question of program efficiency.

Another question that comes up repeatedly in these studies is that of what in college is useful in the job. What is the interface between academic course work and work experiences? Many of the studies use the attainment and maintenance of a job as a measure of success, but the relationship between that which is learned in school and that which is experienced on the job--and vice versa--is rarely considered. If the cooperative education student indeed has a better job record (or a better school record), is it because he was working while in school or because his educational program was more relevant to his job experiences? Because the relationships between work and schooling are seldomly defined, the question is not easily answered.

It seems that except in the special purpose institutions, academic course work and job experiences are not directly related. The studies of Xerox, Langley, and General Motors Institute programs point out how academic and job experiences can be related. It may be that the more comprehensive the instituion in which the cooperative program operates, the more likely its actual benefits for the students will be limited to job placement and financial aids. Put another way, the more comprehensive the institution, the less closely its courses and the students' work experiences will be related. This suggests some hypotheses that may be drawn in further studies of cooperative education.

In summation, we feel that evaluations and/or cost-benefit studies of cooperative education have not typically been well done. Most of them are either run by program heads or utilize program heads as sources of information. Members of this group should be asked to supply data, but designs, hypotheses, and assessments of program outcomes should be provided by outsiders.

The question of conflicting goals must be reconciled. Whose are the real goals that are being weighed--those set by the program heads, the funding agencies, the students, or the employers? Undoubtedly these differ. Which shall be evaluated? Most of the studies confound them, try to assess several of them at the same time, and hence fall short.

Assessing a program's benefits for students is difficult because suitable control groups are not easily identified and because evaluators typically ignore the question of whether all students who could have been in the program were indeed served. This problem should indeed be overcome before further analyses of cooperative education are made.

FEASIBILITY STUDIES

(Section I)

Carlin, Albert U. A Progress Report on the Study on the Feasibility of Cooperative Education at the University of Rhode Island. Unpublished Paper, 1971.

This is the preliminary report of a study conducted by the Curriculum Research and Development Center of the University of Rhode Island (URI) in order to determine the feasibility of instituting a program of cooperative education at the University. Center activities included: (1) hiring a consultant; (2) establishing an ad hoc committee composed of the Deans of all the Colleges, department chairmen, directors of special programs and projects, potential employers, and students; (3) a visit by several staff members to the cooperative program in teacher education at New Mexico State University; (4) a survey of 350 organizations which regularly recruit on campus; (5) a survey of 245 local small businesses and industries; (6) a survey of 65 Rhode Island public and private school systems; (7) informal oral surveys of disadvantaged URI students and non-students; (8) informal oral surveys of other URI students; and (9) participation by one staff member in a workshop on cooperative engineering programs held at the University of South Florida.

175 (50%) of the 350 recruiters responded to the questionnaire survey. Of these, 103 indicated that they already had coop education programs with other institutions and 84 claimed that they would be willing to participate in a URI program by hiring students (68 of the 84 are those who already operate coop programs). Data obtained from the responding local businesses and industries revealed that very few (13 of the 76 respondents) were already involved in cooperative education programs. The author recommends that these firms be further explored and educated in terms of the potential value of cooperative education

to them. Sixteen of the 26 school system respondents expressed interest in participating in a URI coop education program by hiring students majoring in education. On this basis, the author recommends the exploration of the availability of federal funds for the salaries of administrators participating in such programs. He also notes that such federal funding would probably not be necessary after "seed-funding."

Analysis of interest in cooperative education by the college indicates that the Deans of the Colleges of Arts and Sciences, Engineering, Home Economics, and Resource Development are especially interested in coop programs. The Dean of the College of Arts and Sciences views cooperative teacher education as a potential boon to the quality of teacher education at URI. The Dean of the College of Engineering, influenced by the fact that questionnaire responses revealed a great number of available coop positions in engineering, hopes to develop coop programs for the College. The Dean of the College of Home Economics is interested in coop programs for students of Food and Nutrition Science. Lastly, the Dean of the College of Resource Development sees coop programs as particularly valuable to the field of Agricultural Extension Education. The Dean of the College of Pharmacy indicated that this College already places students in educationally valuable summer positions. And, the Dean of the College of Nursing felt that his students would prefer a four-year non-coop program, (which already includes professional practice experience) to a five-year coop education.

As of the date of this report, surveys of students and disadvantaged non-student youths were not complete. However, the author anticipates several problems associated with the concept of utilizing coop programs to help disadvantaged persons attain college educations. The first problem is one of attitude. In Rhode Island, this group contains large numbers of Blacks and persons of Latin origin. Because these people tend to prefer education for careers as different as possible from their traditional roles in society, many shy away from the Colleges of Nursing and Home Economics, which can be seen as leading to "servile" occupations. Because job opportunities are excellent in the fields of nursing, dietetics, and food service management, the author recommends an extensive educational effort to change these attitudes. The second major problem of attracting disadvantaged students to coop programs is the number of other programs giving them outright gifts for college education. In view of this, the coop program alternative as a source of funds may be unattractive.

Overall conclusions are that: (1) it is not feasible for the entire University to enter into a cooperative education program at this time; and (2) it is possible to establish voluntary coop programs in the fields of education, home economics (especially in Food and Nutrition Science), engineering, and resources development.

Plans for continuation of this study include the establishment of more efficient lines of communication with the student body to determine their interest in coop programs, the provision of further opportunities for interested faculty members to work with consultants on coop education, the development of an operational planning phase to start next fiscal year for coop programs in the interested Colleges of the University, and the continuation of the process of educating business, industry, and school systems already surveyed on the advantages of coop programs.

Critique
by
Arthur M. Cohen

This is a feasibility study with an unusual conclusion--the researcher found that establishing a program would be unfeasible. The standard procedures were used--business survey, survey of students--but responsibility was diffused through appointing a committee. The study recommended partial implementation of coop education through some departments only. The precaution of interviewing minority-group students was taken. The results are not generalizable.

Gruenberg, Gladys W. Study of Cooperative University-Community Programs. Final Report. Unpublished paper, St. Louis University, 1972.

This study was conducted in order to determine the role of various work study arrangements currently operating in institutions of higher education in the United States, with a view to expanding the role of St. Louis University (SLU) in the community and to encouraging greater cooperation and communication between its students and various representatives of community institutions. Eighty of the 200 directors of cooperative education programs listed by the Cooperative Education Association were asked to describe their programs which were selected to form a representative sample of diverse program offerings, varied cooperative education patterns, and varied kinds of institutions. In addition, questionnaires were distributed to SLU students and faculty members, and to representatives of the largest businesses and non-profit organizations in the St. Louis metropolitan area to determine their attitudes toward cooperative education, interviews were conducted with well-known authorities in the field, a workshop was held for SLU faculty members, and interviews were conducted with members of local industrial relations organizations.

Results of these information gathering methods indicate the following: (1) cooperative education programs cover a wide range of activities from full-time cooperative education programs with alternating periods of work and study to part-time work study arrangements and even volunteer service by students; whether these programs are integral parts of the curriculum or merely financial aid depends on the educational philosophy of the institution; (2) most of the institutions that have adopted full-time cooperative education programs since 1960 fall into two categories: (a) those that have had on-going programs in vocationally-oriented schools such as engineering and architecture, or (b) those that have received federal funding for assistance to disadvantaged students, primarily for minority groups; (3) under current economic conditions, employers in private industry are reluctant to expand their cooperation with such programs unless they can be used to implement affirmative-action programs to promote minority training; (4) students and faculty at SLU generally favor some kind of cooperative education program to give students job experience as part of their college curriculum; (5) the first change which must occur if an effective cooperative education program is to be adopted is wholeheartedly to endorse the professionalism of education, so that all students are expected to have experiential learning as part of their college curricula whether they need financial assistance or not; (6) any plan which covers all students requires the services of a full-time director with faculty status, plus administrative assistants and clerical staff; (7) adoption of a cooperative education program requires a total commitment of the institution to a career-oriented approach to education and an acknowledgement of the institution's responsibility to facilitate the student's transition from school to employment in a profession of his choice.

The author discusses the basic philosophical differences between the concepts of education for its own sake and education as preparation for a job or profession. According to her, liberal arts cooperative education programs tend to adopt the former attitude toward education, while vocational programs tend to hold the latter. Liberal arts programs, therefore, tend to reward the student with credit more often than with pay, to have more faculty support and control, and to have a better academic image. Vocational programs, on the other hand, tend to reward students with pay for work performed, and to be controlled by the placement office, which often uses the program for financial aid to disadvantaged students and as a recruitment tool for the educational institution.

As a result of placement office involvement, vocational cooperative education programs become work-as-financial-aid, rather than work as experiential education in preparation for a job or profession. According to the author, federal funding trends also lead to this situation. Under the Higher Education Act of 1965, federal funds for cooperative education are earmarked for those plans designed "for students from educationally and economically deprived backgrounds" and "for students in two-year colleges, particularly in urban areas." Because requests have exceeded available funds by 800 percent, only those programs which meet these two criteria are regularly approved. Furthermore, the federal government has attempted to use work study programs as a tool in the promotion of minority group training and hiring and the programs selected for federal funding indicate the use of such programs by both employers and the USOE to implement the affirmative action guidelines demanded by Title VII of the Civil Rights Act of 1964.

Two options for cooperative education programs at SLU are proposed. The first, a total program for all students, which would involve full-time alternation of work and study, is not recommended: it would cost more, and, because few students at SLU meet the requirements, federal funding could not be expected. The second option, the Work Study, Professional Practice Program (PPP) is recommended. This program would be coordinated by one director of a new Professional Practice Department and would include a combination of work and study within the same time period on a part-time basis. The PPP would operate within individual departments such that each student would be supervised by a faculty advisor from his major department. The professional practice course would be designed so that the undergraduate could test himself in an actual work assignment as an understudy to a professional in his chosen career. This course would be graded on a Pass/Fail basis and would carry three credit hours applicable to the student's major requirements. Jobs related to students' majors would be developed under a uniform set of rules for determining the worth of the work experience for purposes of the professional practice course requirement. The PPP could utilize federal funds for those students in need of financial assistance. Those students not requiring financial aid would work as volunteers, preferably for non-profit service organizations which would not be likely to hire them for pay.

Critique
by
Arthur M. Cohen

Here is a case where a researcher set out to find useful ideas to implement in program redesign in the researcher's own institution. The method employed was typical--ask program heads in other institutions how they operate their programs--and satisfactory for the researcher's purposes.

Some of the author's conclusions, however, are unsubstantiated by the study. First, the conclusion that adoption of a cooperative education program requires a total commitment of the institution is not based on sound interpretation. Although broad institutional commitment is desirable, it definitely is not an essential condition for a successful program. Second, the conclusion that federal funds tie cooperative education to minority student aid seems based on the author confusing work-study funds and cooperative education support funds.

Hiserodt, Donald D. A Study of Cooperative Occupational Education for the Maricopa County Junior College District. Unpublished paper, 1971.

This report represents the efforts of a project director working with funds provided by the Arizona Department of Vocational Education, under the authority of Part G of the Vocational Education Act of 1968, to design an effective cooperative occupational education plan for the five-campus Maricopa County Junior College District (MCJCD). His work included an interest survey of MCJCD faculty members, an interest survey of Maricopa County employers, a review of the literature on cooperative education, the holding of several planning meetings with faculty and employer groups, an analysis of the potential costs and benefits of cooperative education, and the development of recommendations for the development of a cooperative occupational education plan.

Responses from 97 full-time day occupational education instructors in the District (73% of the 133 contacted) and from 59 of the 100 employers contacted indicated strong support for the concept of cooperative occupational education, itself, and for the expansion of such programs in the District. 76% of the faculty respondents and 49% of the employer respondents indicated their willingness to serve on faculty-employer committees designed to plan and develop a program.

The faculty members and employers who attended these meetings proposed three plans: (1) an exploratory plan designed to assist the student in developing a career objective--this would include non-paid observations of different occupations combined with class meetings in a one-semester course; (2) a skills development plan designed to develop occupational skills--this would include paid job experiences combined with a control class to provide instruction that is correlated with the jobs; and (3) a skills application plan designed to enable the student to apply his already acquired skills and knowledge in a real work situation--this would include job experiences and a control class similar to those provided in the skills development plan, but the work experiences would not be directed by the college to develop any specific skills. The author's analysis of the costs and staffing of a skills application plan reveals that the utilization of either a full-time coordinator plan, based on a full teacher load of 75-100 students, or of an incentive plan, in which coordinators carry full-time teaching loads and receive incentives for each student they coordinate, would result in cooperative occupational education costs comparable to District average costs per SCH in occupational courses. The incentive plan is approximately $4.00 cheaper per student per semester than the full-time coordinator plan.

The author's recommendations, which he admits are largely subjective, are: (1) that the MCJCD recognize and accept the concept of cooperative occupational education as a flexible instructional strategy or method as opposed to a rigid program; (2) that the MCJCD implement a skills application plan by 1971-72; (3) that the incentive plan of staffing be utilized at the rate of $50.00 per student per semester; and (4) that the District office employ a full-time coordinator.

The skills application plan would consist of several three credit courses, each including at least 15 hours per week of career-related on-the-job experience; each student could earn a maximum of nine semsester hours in cooperative work experience to apply to an AA degree. In order to enroll in these courses, the student must be concurrently enrolled in one or more courses related to his vocational goal, with the exception of those normally full-time students who choose to alternate work and study on a semester basis. Students must have earned or be concurrently enrolled in two credit hours of other course work for each credit hour of coop work experience. Students must be paid for their work experience unless they agree to non-paid work experience and provide their own accident insurance comparable to workmen's compensation. All cooperative work experience courses will be graded on a credit/no-credit basis.

Full-time occupational education instructors will be eligible to coordinate a maximum of 12 students per semester. They will be responsible to certify student eligibility for enrollment based on the student's stated career interest; to attest that a student's work experience is related to his career objective; to visit the student's place of employment at least twice each semester (once to secure the employer's cooperation and again to obtain an evaluation of student performance from the job supervisor) and to make one additional telephone contact or visit during the semester; to sign the student's weekly time and work report after it has been signed by the student and the job supervisor; and to provide weekly counseling for each student.

The full-time coordinator employed at the District level will provide inter-campus coordination, will coordinate the faculty-coordinators when more than one of them on a single campus is involved with a single employer, will perform the job development activities for employers who will employ students from more than one campus, will provide record storage and retrieval for the entire plan, will establish and conduct a District-wide advisory committee for the cooperative occupational work experience plan, and will provide general leadership, supervision, and promotion.

Although this plan does not comply with the standards established by the Arizona Department of Vocational Education or with those set up by the U.S. Office of Education, it is the most educationally and economically efficient of the alternatives. It also will involve large numbers of students in coop education, will provide for the upgrading objectives of employed persons as well as the younger full-time student, will be simple and easy to administer, and will expose faculty members to the methods used in business and industry.

Critique
by
Arthur M. Cohen

This type of study begins with the assumption that a coop program should be created and sets out to determine its most feasible and useful parameters. The design is simplistic: ask people on- and off-campus whether they think the program would be a good idea and whether they would be willing to participate in it. The program layouts recommended seem appropriate for the level and area to be encompassed, but there is no indication of the number of them that came from the survey and the number that could have been made had no survey been run. The usefulness of this type of faculty and employer survey is that it publicizes the intended program, gaining needed advance supoort. Further, they made it possible to tailor the program to local conditions. Little generalizability--each district must do it's own survey to insure local applicability.

Kaup, Shekhar S. Cooperative Education at UMES: Report of the Faculty Community. Unpublished paper, University of Maryland, Eastern Shore Campus, 1974.

Funded by the USOE, this project to study the feasibility of a cooperative education program at the University of Maryland, Eastern Shore, was begun in 1973. UMES had been an all Black campus until 1964, and still has a 65% Black enrollment, most of whom are from lower income families. It offers traditional liberal arts and sciences and professional programs.

The faculty committee engaged in a review of the literature, on site visits to study the programs of 10 other similar colleges, and an informal opinion survey of UMES faculty and students. The results of the latter two activities are discussed in detail in appendices. Upon consideration of their investigation, the faculty committee makes the following recommendations concerning the academic and administrative structure of the proposed UMES cooperative education program: (1) the program should be optional and available to every qualified student in all departments; (2) an alternating semester organization should allow but not require completion of the baccalureate degree in four years; (3) the total length of the work experience would be one year--two semesters and one summer. A flexible schedule was developed allowing a student to begin the initial work period in either the sophomore year or in the summer session between the sophomore and junior years, while still preventing the need for offering repeat courses; (4) the student may earn 3 semester credits for each experience (9 total), providing the student completes a project approved by his coordinator and/or department head. However, the student may opt for no credit in which case no project is required. The credit earned will substitute for elective credits needed for graduation.

In the administrative structure, the committee recommends that (1) the program be established under central administration with its director reporting to the Vice Chancellor for Academic Affairs; (2) the initial staff should consist of a director-coordinator, a one-fourth release time member from each of the two divisions, and a secretary; (3) that a committee consisting of a faculty member from each department be assembled to advise and aid in policy formation, identification, and evaluation of work experiences, selection of students, and counselling of staff and students; (4) the placement of students should be as closely related to their discipline as possible, and students should be paid according to the company's prevailing wage for the position to which they are assigned; and (5) the student should be charged a $40 Cooperative Education fee, all regular student activity fees, and the prevailing fees per credit hour which UMES charges part-time students (should he opt for credit).

The committee expects a 33,375 dollar budget for the first year of operation, much of which will be funded by the Office of Education under Title III and IV-D. The projected coop enrollment is estimated at 5% of the total enrollment for the first two years, rising to 10% by the fifth year. The impact on the faculty will be the need for fuller summer session offerings, a one-quarter reduction of teaching load for the faculty members selected as staff of the program, and the no cost faculty advisory committee. Additional library costs will arise from the need for a full staff in summer session and increased enrollments. Administrative costs will be equivalent to the setting up of a new department, plus the additional expenditures for travel (75% per student) and communications, printing, and promotion.

Another major consideration was the impact of coop education on the traditionally important student activities such as athletics, student government, and journalism. Among possible solutions to these problems were: (1) one semester of coop experience near to campus; (2) substitution of one year of successful performance in a student leadership position for one semester of work experience; and (3) planning the work experience in semesters other than ones in which the athlete participates in a sport. The athlete involved in both fall and spring sports would have to make a choice.

The committee offers an elaborate system for evaluation of the student based on 9 types of objectives derived from a matrix of developmental tasks (personal, social, career) and educational objectives (cognitive, affective, and psycho-motor). The range of possible competencies is much wider and more overlapping than the range of courses offered in traditional learning. In the evaluation of program and student, the role of the faculty member is to provide assistance in the formation of program objectives and instruments of evaluation. The coordinator helps develop personal objectives for the student, conducts group sessions, relates work experiences with career goals, maintains contact with off-campus students, serves as liaison between faculty and employers, and helps evaluate students and programs. The employer assumes the role of instructor in residence, orients new students, evaluates learner's educational outcome on the basis of the successful action measured by considerations of economic and social value.

Critique
by
Arthur M. Cohen

Here is a feasibiltiy study done by a faculty committee. In the fashion of their kind the committee reviewed the literature and visited other institutions where programs were operating. Their recommendations are based on their interpretations of the processes seen in other programs as influenced by their knowledge of their home institution. Noteworthy are their suggestions for building in comprehensive student evaluations.

PROGRAM DESCRIPTION, EVALUATION AND IMPACT

(Section I)

Astin, Alexander W. Preventing Students From Dropping Out. San Francisco: Jossey-Bass, 1975.

This study is based on a nationwide survey of 41,000 undergraduates in 1968 and a follow-up survey of the same group in 1972. The 358 institutions of higher education included in the study represented two-year colleges, four-year colleges and universities. The dependent variable was student persistence versus dropping out. With data from the Cooperative Institutional Research Program, the expected probability of dropping out was computed using measures of each student's ability, grades, study habits and aspirations.

The most "dropout-prone" freshmen were found to be those with poor high school records, low aspirations, poor study habits, relatively uneducated parents and small town backgrounds. The greatest predictive factor was the student's religious preference and degree plans at the time of college entrance. The entrants' background and aspiration level characteristics were combined by means of linear-multiple-regression techniques which measured the likelihood of a student completing his degree. Financial aid, employment, living arrangement, and college characteristics were also shown to affect the expected dropout rate of these students. The contribution of these variables to persistence is determined by comparing the "expected dropout" rate with the actual dropout rate.

The source and amount of financial aid was shown to be an important factor in persistence. Receiving parental support enhances the student's ability to complete college, while scholarships or grants allow small increases in student persistence, especially for women from low-income families. Reliance on loans is associated with decreased persistence among men; the effects are variable for women. For Blacks in white colleges, loans increase persistence, while participation in federal work-study programs seems to enhance persistence, particularly among women and Blacks. Work-study has its most consistent positive impact among students from middle-income families; however, work-study programs tend to lose their beneficial impact when combined with grants or loans, especially among low-income students. But greater persistence did result from a combination of work-study and major support loans. It was found that on-campus employment increases persistence and is more beneficial than off-campus work. If employment is less than full-time, a 10 to 15 percent decrease in dropout probabilities can result and students with off-campus jobs are more likely to dropout the more their work is related to their career goals. The positive effects of employment are more pronounced among Black students.

Residence in a dormitory enhances a student's chances of completing college. Chances of completion are maximized by attendance at a private university in any geographic region or at a public four-year institution in the northeast or southern states, while chances are minimized at a two-year institution.

Conclusions with some policy implications regarding the effects of employment and financial aid on persistence are as follows. On-campus part-time employment appears to be the best alternative; however, results of off-campus work can be positive also, though the circumstances must be carefully controlled. Institutions should consider financial aids packages cautiously. Modest support from several sources simultaneously is generally associated with reduced chances of persistence, whereas support from a single source (with the exception of a loan) increases persistence. Apparently then the effects of college employment are most beneficial among students who receive no grant or loan support. For students with substantial financial need, packaging work programs with other support should be done with care and more research into the effects of financial aid/work packages should be done.

Critique
by
Lewis Solmon

This study has been deemed "highly relevant" despite the fact that it deals with traditional colleges and universities without any specific references to vocational or cooperational education. Its relevance comes from several directions: (1) It is of very high methodological quality. Not only are most of the relevant factors controlled, but the statistical techniques used facilitate accurate interpretations. It could be a model for other impact studies. (2) The study suggests an important new outcome measure for use in evaluating vocational and coop education programs. Most evaluations look at earnings and job success as measures of the value of programs. (3) An important determinant of the probability of dropping out, after controlling for most of the variables, is the nature of the sources of student financial support. To oversimplify, the strongest correlation between persistence and aid type was when aid was earned in work-study programs. And (4), in attempting to understand the power demonstrated by the work study effect, we can learn about the value of coop education and about the conditions under which it is most valuable.

Work study encouraged persistence most when the work was less than full-time. We might infer that coop education programs would be most effective if they were part-time programs during the school year. Probably long periods of full-time cooperative work away from school would encourage dropping out.

On-campus work was shown to be more effective than off-campus work. Also, students with off-campus work are more likely to drop out if their work is related to their career goals. These results appear to pose problems for coop education which is intended to get students off campus and into career related jobs. However, the reason on-campus work was more effective probably was the fact that students with these jobs became more involved with the institution and more committed to it. If the coop experience could be linked to the school (for example, by having coop students report on their experiences at work to other students), the student involvement in school could be enhanced by cooperative education. Also, the coop experience, while being career related should stress that long term advancement depends upon school learning as well as on-the-job training. (If this is not the case, dropping out may be as wasteful as persistence.)

Another lesson from this study is that the student whose support comes from more than one source is more dropout prone than the student who has single-source support. Hence, coop employers should be encouraged to pay a wage high enough to preclude the student workers from having to seek other means of support which may detract from their educational and career preparation objectives.

The overall conclusion of the study lends important support to coop efforts. Work study experiences are a powerful correlate of persistence--particularly if that experience leads to involvement with the school and does not require additional efforts for the student to support himself.

Community College Vocational Cooperative Education: Exemplary Project in Vocational Education Conducted Under Part D of Public Law 90-576. First Annual Report. Unpublished paper, 1971. (ED 058 880)

Community College Vocational Cooperative Education: Exemplary Project in Vocational Education Conducted Under Part D of Public Law 90-576. Second Annual Report. Unpublished paper, 1972. (ED 068 092)

Community College Vocational Cooperative Education: Exemplary Project in Vocational Education Conducted Under Part D of Public Law 90-576. Final Report. Unpublished paper, 1973. (ED 080 108)

These are the annual reports of a three-year demonstration project in vocational cooperative education, which was a consortium effort of five California community colleges located in the San Mateo Junior College District and the Coast Community College District. The major objectives of the project were to establish a national demonstration model for community college vocational cooperative education and to show the effectiveness of: (1) alternate semester, parallel, and extended-day plans; (2) recruiting, development, and coordination procedures; (3) vocational coop education in recruiting and maintaining disadvantaged students; (4) vocational coop education in solving technical, business, and paraprofessional manpower recruiting and training problems of businesses and industries; and (5) television instruction and coordinated instruction systems in and counselling for off-campus students in coop education with particular emphasis on occupational orientation for elementary and secondary students. The diverse patterns, kinds of students, and kinds of locations involved in this project make it replicable at almost any two-year college.

The most critical problem faced by the project was the enthusiastic student response, which resulted in over 2,000 students being placed in work stations during the first year; because the first project-year was funded on the basis of 1,000 student placements, additional funds had to be sought.

At the end of the third project-year nearly 5,000 students per semester were placed with over 3,200 coop employers; this student enrollment figure was 67% more than the best expectation of 3,000 planned for the third year of operation. During 1972-73, the coop students worked about 30 hours per week earning an average of $2.94 per hour during 42 weeks for a total combined income in excess of $16 million; this makes coop education the largest financial support program existing at the colleges.

These, and other findings, indicate the overwhelming success of the project. Specifically, it was found that: (1) retention of students is improved by a factor of nearly 2 to 1; (2) student academic standing is maintained or improved while enrolled in coop programs; (3) disadvantaged students show improved progress; (4) employers are highly receptive to coop education after a period of effective demonstration and promotion; (5) a negative-excess-cost-factor can be applied to programs of this type; (6) educational opportunities are improved; (7) coop education leads to a firm linkage between educational preparation and permanent employment upon graduation; (8) training, upgrading, and re-training are important features of coop education for those with lower-level jobs who wish to improve their positions as well as for those who are beginning to work for the first time; (9) nearly 100% of the coop students were able to hold their coop jobs after placement; (10) coop job development, which requires about 3 man hours per job, can be accomplished either by a full-time developer or by assignment as part of the task of regular coop coordinators; (11) returning veterans are finding coop education particularly helpful; (12) student career training options have doubled with no increase in the number of college programs; (13) various successful approaches to developing employer participation include one-to-one meetings with supervisory personnel, large group meetings with many employers, approaching large companies and small companies through associations, the band-wagon effect as companies become more aware of program potential, and job development as a regular function of coop coordination activities; and (14) the consortium approach to development of innovation in five colleges provides course stimulation between colleges capitalizing on individual breakthroughs.

It is also noted that hundreds of coop students working in regular classrooms at the pre-school, elementary, junior high, and high school levels have served as "older brother/sister" models of how to gain a better college education through coop work experience. Furthermore, the extent of nationwide interest in this demonstration project is evidenced by the large numbers of outside inquiries, calls, and visits experienced by the colleges involved. It is also significant that all five consortia colleges will continue to offer coop programs through regular funding.

New Horizons in Cooperative Education: Project Report. Unpublished paper, 1974.

From July 1, 1973 to June 30, 1974, three community colleges in the San Mateo Community College District participated in the "New Horizons in Education" project. This USOE-funded project was designed to research, develop, and share with others a number of innovations in cooperative education, most importantly the concepts of (1) measurable learning objectives on the job; (2) comprehensive liberal arts-vocational programs; (3) improved methods of sharing results with other coordinators; and (4) trends of the future, especially in the western United States.

Specific indicators of program success are similar to those noted in the three annual reports of the demonstration project conducted from 1970 to 1973 by the San Mateo Junior College District and the Coast Community College Districts (see above). Additional findings are that (1) continuing education for adult students through coop programs is proving to be highly effective and (2) coop education can be effectively used to promote affirmative action at professional, paraprofessional and technical levels.

Three patterns of coop work experience have proven to be effective. In the Alternate semester pattern, two students hold one full-time job on a year-round basis; during each semester one student is in school while the other works full-time. The Parallel plan allows each student to hold a part-time job and to attend college part-time during the same semester. The Extended Day or Evening College New Careers plan provides evening classes related to the full-time employment and new career goals of students.

Preliminary evidence indicates the effectiveness of evaluating student progress according to specific learning objectives predetermined by students in conferences with their on-the-job supervisors and college coordinators.

This procedure tends to involve the employers in the educational growth process and to focus the student on potential improvements which can be gained from the work experience.

As a result of stimulus funding from USOE, these three colleges have improved the comprehensiveness of their coop programs, which previously emphasized vocational education. Effective low-cost procedures were developed to maintain a balance between vocational coop education and liberal arts coop education, particularly that which leads to upper division studies in state colleges and universities. Student and faculty interest in coop education improves as programs grow to involve all academic divisions.

During 1973-74, 376 coordinators from other colleges in 12 states visited the District and were provided with developmental information. The needs for improving the process of research, development, and sharing of proven methods in the western 13-state region of the United States can be fulfilled by the establishment of a Western Regional Consortium. In light of this need, future coop projects granted to colleges in this region should be funded in such ways that there is an assurance of effort to share the results of research and development activities.

For the next decade, the need to develop comprehensiveness in present coop activities will be as great as the need to establish new programs. Another important need is for colleges to bring together all those programs operating under such titles as coop education, work experience, field experience, internships, work-study, student job placement, and career guidance; this consolidation would benefit employers as well as students in that one phone call could provide all available information on careers, employment, work experience, and placement opportunities.

It is recommended that every possible action be taken to develop coop programs in a broad range of colleges. All higher education students should have access to such programs. The first priority should be to substantially develop larger urban-suburban public institutions and the community colleges, state colleges, and universities where most of the nation's students are enrolled. The need is for widespread activity in locations where the majority of students can participate.

Critique
by
Arthur M. Cohen

These studies are reports by program heads on the success of their own programs. Their usefulness is limited to their demonstrating the broad range of benefits obtained through coop programs. Methodology? Describe the program and present some comparisons between students enrolled in the program and those not enrolled--i.e., between students obtaining special consideration and those on their own. The commentators are not making comparisons between treatments but are comparing something with nothing.

The programs are shown to offer at once financial aids, job placement services, and broadened opportunities to students, enhanced public relations for the college, and a ready labor pool for employers. All to the good. However, the integration of work and learning seems minimal here and the question of whether coop education can be effected at higher levels than first-entry positions is skirted. Also missing is an examination of the question of how many students would be working at the same job they had through the coop program if the program had not been available and in what ways the students' academic programs differed. The programs' success may rest quite heavily on the energy, organization, and enthusiasm of the program coordinator.

Cunningham, James B. Cooperative Education: Program Study. Unpublished
Paper, Xerox, August 1972.

Xerox's coop program was evaluated to determine its benefits to the company. Coop began at Xerox in 1959 with 256 graduated and 111 hired full-time since then, but the program was first formalized in 1966. Interviews of coop supervisors, students and personnel people showed that coop education is beneficial to the company in that it: (1) provides a valuable supply of temporary manpower; (2) provides a source of pre-screened college graduates; (3) provides an opportunity for an employee to gain experience in supervising by testing his skills on students who would not be affected as much as permanent employees; (4) provides a hedge against lay-offs and manpower shortages; (5) allows work to be completed by a person who is paid $30-$50 less a week than a full-time aide.

A survey of 107 coop supervisors with 60% returned showed little difference in their opinions of coops and full-time aides; however, they felt that coops would be less desirable than full-time aides if coops had to be counted as staff members in individual departments. The present system of not counting coop students as department staff allows department to exceed their manpower restrictions. Supervisors also felt that work blocks should be longer, productivity increased, more meaningful assignments given and coops pre-screened by them so they could plan better work assignments. Supervisors spent about 16% training time per work block; and the coop reached about 80% productivity within 1-2 months of the first work block, as long as meaningful work was given. The comparable full-time position was felt to be salaried at $191 a week; and in the last work block, most coops were capably doing associate engineering jobs.

The coop graduate survey results did not vary greatly from similar surveys taken by universities. Although 25% felt coop work did not prepare them adequately for full-time employment, 75% said that it did, and 100% said they would coop again. The vast majority of the respondents listed creative work and the opportunity to develop skills as their main reasons for choosing the program and for satisfaction with the program, while job security and working conditions were last. 79% were satisfied, 14% neutral, and only 7.02% dissatisfied with the type of work assignments given. 66% felt the work assignments were related to their college major, while 36% felt school preparation for their jobs was inadequate. When asked about major problems with the program, 40% listed none, 20% complained of unrelated work assignments, 30% listed red-tape and slow work block startups, and 10% complained of being treated like students even after being hired as full-time employees. Asked what they like most, 40% said meaningful work, 35% exposure to the company, 14% money, and 11% "the people."

An examination of company personnel records since 1967 showed no significant difference between coop graduates and those hired directly from college except in retention rate after employment: 96% for coops hired full-time and 75% for non-coops. In the other categories--starting salaries, salary increases at mid-point, and last performance appraisals--the coop students came out only slightly higher than non-coops; however, it was noted that all the non-coops had previous related work experience when hired. The lack of significant differences may also be due to the program's not having been developed effectively enough to search out and hire the best coop students, and due to the fluctuation of the program size since its inception. Xerox was also unable to hire the best coop graduates because they often found jobs elsewhere before a full-time position was available at Xerox.

In a cost analysis of the last five years, the coop program was shown to have saved Xerox over $700,000 both in salaries and benefits while the coops were still students and in recruitment costs eliminated by the high retention rate of coop graduates. Other benefits, such as hedge against lay-offs, supervisory training experience, contact with universities, and non-coops hired as a result of information publicized by coops, cannot be evaluated financially. It was also suggested that the high retention rate of coops might justify recruiting more minority coops in the future to make up for the high turnover rate of minority employees.

Beyond concluding that coop education had been beneficial to the company, six recommendations were given for reorganizing the program: (1) to fix the size of the program according to the projected number of people hired directly from college each year, assuming that 1/3 will graduate each year and that some will drop out before graduation; (2) to decentralize the responsibility for the program into the various personnel areas so that students will be hired whose interests and qualifications fit the needs of each department and so that each personnel area can better monitor the work; (3) to have a central coop budget for each area with students assigned based on selection from written supervisor requests; (4) to evaluate and monitor the progress of the student more closely so that more are available and qualified upon graduation; (5) to include 30% minority and 10% female to correspond with corporate affirmative action plans; and (6) to develop additional sources of minority and female coop students, such as high schools and military.

Jarrell, Donald W. An Evaluation of the Langley Research Center Cooperative Education Program. A Report on Research Conducted under the NASA-ASEE Faculty Fellow Program. Unpublished paper, August, 1970

The Langley Research Center (LRC) cooperative education program for science and engineering students was established in 1952. It is administered by a coop education coordinator in the LRC training office and by a "division contact" in each of the research, flight project, and engineering and technical services divisions that use coop employees. The typical LRC coop student takes courses at one of the 22 cooperating colleges and universities and engages in at least six different assignments during seven three-month work periods at Langley. Permanent employment has been offered to all student trainees who successfully completed the program, which began in 1952. As of March 31, 1970, a total of 103 permanent LRC employees were former participants in the LRC coop program.

This research was conducted to evaluate the program in terms of its objectives, to clarify the manner in which program operations contribute to or detract from the attainment of these objectives, and to recommend courses of action to further improve program operations and attainment of objectives. The first step in program evaluation was an examination of the personnel records of four groups of LRC employees: (1) the 103 "former coops"--those who were hired immediately upon receipt of the B.S. degree; (2) 458 "college recruits-undergraduates"--non-graduates of the LRC coop program who were hired immediately upon receipt of the B.S. degree; (3) 51 "college recruits-graduates"--persons hired immediately upon receipt of a graduate degree; and (4) 131 "experienced professionals"--persons hired after a period of post-school (graduate or undergraduate) work experience. Individual personnel records were examined for a random sample of 112 persons drawn from the total of 743 employees who had received their B.S. degree after 1957, who had entered on duty after 1957, and who were still at Langley on March 31, 1970. Results indicate that, compared to employees recruited from other sources, former LRC coop employees showed an initial advantage in promotion, earned a graduate degree more often, had a strikingly lower turnover rate after becoming permanent employees, and received more awards. On the other hand, former LRC coop employees tend to represent a relatively limited range of academic backgrounds.

Responses to a questionnaire administered to 21 percent coop students and 26 recently employed former coop students (total n=47) were generally favorable to Langley and to the coop program. The two primary reasons they would now choose a coop education plan are "financial aid" and "work experience aids in knowing if career choice is correct" (each of these responses was checked by 38 respondents); 28 indicated "work experience aids in getting a job after graduation" and 18 checked "work experience aids in understanding course material" as reasons they would now choose a coop plan. Although 14 indicated that coop programs had no disadvantages, 15 noted the "greater length of time required to obtain the degree" and 10 noted "interruptions of education caused by work periods" as disadvantages. Asked why they would now choose Langley as a coop employer, 38 checked "opportunities for graduate work at Langley," 24 checked "fringe benefits available at Langley," 17 checked "geographical location," and 17 checked "training opportunities were felt to be superior." Asked about the disadvantages of now choosing Langley as a coop employer, 15 indicated that pay at Langley was inferior and 9 indicated that the local communities were poor places to live. The 26 recently employed former coop students indicated that the work assignments could be improved. Sixteen indicated that their work assignments were too elementary and only 15 felt that their work assignments were usually quite worthwhile opportunities for learning. Although 23 of the 26 felt they received sufficient guidance from professional engineers, only 11 felt they received sufficient support from the division office.

An analysis of program administration, based upon interviews with the coop program coordinator and with a division contact and at least one supervisor in each of the 15 major divisions employing coop students, revealed that two major types of errors occur in the assignment of students: (1) mistakes are made by supervisors in the assignment of and supervision of the coop employee because problems arise that they have not experienced and so do not anticipate and prepare for in advance; and (2) supervisors select students for assignments when there is no work suitable for the student or when other conditions prevent his properly implementing a good work assignment. These interviews also revealed the difficulty involved in giving a coop student his first work assignment, at which time he has had no courses in his major field. This makes it hard to fit him into a division in a job that will be an effective training experience, yet will not be too advanced for him.

Recommendations include: (1) that special attention be paid to the coop student entering his first assignment; (2) that divisions be required to provide details of a work assignment before a student is assigned; (3) that more attention be paid to the coop student by division contacts; and (4) that LRC arrange informal social gatherings for coop employees to alleviate their sense of alienation from the local community.

Critique
by
Arthur M. Cohen

The researcher states the program will be evaluated in terms of its objectives but these are not cited. Nor is the issue of relationship between job and course work spelled out. But the special purpose institution with ready access to a major corporate employer has an advantage in placement and job tenure and advancement. The survey of graduates is useful in internal program modification. Each program, however, must generate its own instrument to insure relevancy of queries.

Pitcoff, Joel and Bordsky, Fred. "Highlights of Cooperative Student Opinion Survey." Journal of Cooperative Education, November 1965, 2, 21-27.

The purpose of this study was to survey the backgrounds, attitudes, experiences, and opinions of coop education students. A questionnaire was distributed in April, 1965 to all upper class coop students at seven of the largest five-year coop institutions. These seven institutions had nearly half of the total coop population in the United States. Over 2,800 students (40% of those contacted) responded.

Results indicated that: (1) the most important reasons for choosing a coop college were the educational and financial benefits of coop education; (2) almost 50% lived with their parents all year round and two-thirds lived with their parents either for school, for work, or both; (3) more than 90% relied on their coop earnings for about half of their college expenses (mean annual coop income = $1,900); (4) approximately 60% claimed that their coop work had some effect on their career choice and selection of major or of courses, but less than 2% indicated that coop work had helped them to resolve indecision about a major; (5) over 20% had rarely or never used material learned in class in their work and over 25% had rarely or never used material learned at work in their classes; (6) less than 10% reported their jobs and majors to be unrelated; (7) approximately 50% considered the educational value, challenge, and responsibility of coop education to be better than their original expectations; (8) most felt that the compensation of coop education was what they had expected it to be; (9) 40% considered their academic workload to be heavier than that of a non-coop student; (10) more than 90% rated their total college education superior to that available at a typical non-coop college; (11) most felt that participation in extra-curricular activities was not greatly affected by being a coop student; (12) transition difficulties were noted to be less severe in the school-to-work change than when returning to school, but less than 5% considered the retention of knowledge from previous terms as a problem; (13) after graduation, most expected to have an advantage in terms of compensation, advancement opportunities, responsibility, and authority when competing with a non-coop graduate for a job with a company neither had worked for previously (about half of those predicting advantages said they would last one to two years, another 25% said three to five years, less than 10% said longer than five years, and the remaining 18% predicted no effect after the first year); (14) most felt they would have no advantage over the non-coop graduate if they continued to work after graduation with their coop employers in the same department with the non-coop graduate who had already been there for a year.

It is interesting to note that these opinions do not evolve; the distributions of answers is virtually uniform for sophomore through senior years.

Critique
by
Arthur M. Cohen

The study is dated--information was collected in 1964, prior to the many attitudinal and perceptual changes among college students in the late 1960's. The researchers would have been well-advised to sample the population and vigorously pursue non-respondents. As it is the data suffer suspicion based on the bias inherent in a self-selected respondent sample of 40%; e.g. more than 90% of the respondents felt their education was superior to that which could be attained at a non-coop institution. Further, questioning students at only the largest, five-year coop colleges lends doubt to the generalizability of the findings.

Smith, H. Stuart, Jr. "The Influence of Participation in the Cooperative Program on Academic Performance." Journal of Cooperative Education, November 1965, 2, 7-20.

Engineering students at Virginia Polytechnic Institute (VPI) may choose a five-year cooperative education program, involving 12 quarters of academic study and seven quarters of industrial experience, or a four-year regular program. This study was undertaken to examine the impact of the coop program on the academic performance of the participants. It was hypothesized that participation in the coop program did have a favorable influence on the students' academic performance and that this influence would be reflected in a higher grade index, especially in the senior year, and a higher percentage of coop program engineering graduates. It was further hypothesized that attrition rates for coop students would be lower than those for non-coop students.

Data from college records were obtained for 85 coop and 95 regular program students who had entered VPI as freshman in Fall 1959. The groups were matched on the basis of academic potential (as measured by grade index through the first two quarters of the freshman year, IQ scores, and the T, or total score, yielded by the Cooperative School and College Ability Tests) and other factors considered influential in academic performance (participation or non-participation in the freshman military program, age at time of enrollment and marital status).

In the analysis of attrition rates, any student from either group who left the field of engineering was considered a dropout; coop students who switched to the regular program were retained in the coop group. This analysis revealed that coop students had a substantially lower attrition rate only in the sophomore year. Analysis of the average number of credit hours failed per student and the percentage of each group failing some course during each academic year revealed that coop students had a lower failure rate. This was particularly noticeable among students from the lower halves of each group. It was also found that a higher percentage of the original group of coop students received B.S. degrees in engineering. Comparisons of the year-by-year mean grade index of both groups indicated some degree of superiority for coop students in each academic year except the sophomore year. This superiority was not sufficiently great to be considered important until the senior year. As was the case with failure rates, this superiority was particularly noticeable for the lower halves of each group. Although none of the differences in performance was of such great magnitude as to be absolutely conclusive, it was clear that coop students excelled in each area of academic performance examined.

A brief follow-up study of 52 coop and 52 regular program students who entered VPI in the Fall of 1960 confirmed the results of the initial study. These groups were matched only on the basis of grade index, and the senior grade index was the only performance factor evaluated. In the senior year, the mean grade index for the cooperative program student group was 2.05 (of a possible 3.00), compared to 1.80 for the regular program students. Tables and graphs are included.

Lindenmeyer, Ray S. "A Comparison Study of the Academic Progress of the Cooperative and the Four-Year Student." Journal of Cooperative Education, April 1967, 3, 8-18.

Since 1967, sophomore engineering students at Northwestern University Technological Institute (NUTI) have had the option of choosing a five-year cooperative education program or a four-year regular program. This study, modeled after a study previously conducted by H. Stuart Smith, Jr., at Virginia Polytechnic Institute (see above), was designed to measure the effects of coop program participation on the academic performance of engineering students. The hypotheses were that participation in the coop program did have a favorable influence on the students' academic performance from the start of the program up through graduation and that the attrition rates would be lower for coop students than for four-year students.

Data from college records were obtained for the 180 coop and 58 regular program students of the entering classes of 1960 and 1961. Any student leaving NUTI before the end of six academic quarters was not included in the study. Analysis of College Board SAT scores and cumulative grade point averages at the end of six quarters of academic work indicated that the groups were similar in academic potential.

As in the Smith study, any student from either group who left the field of engineering was considered a dropout and coop students who switched to the regular program were retained in the coop group. Analysis of attrition rates revealed that more than twice as many regular program students dropped out of engineering; this was true for both the lower and upper halves of both groups. Analysis of the average number of quarter hours failed per student, the percentage of each group failing some course during each academic quarter 7 through 12, and the percentage of students on probation during each academic quarter, showed the general superiority of the coop students. As in the Smith study, this superiority was particularly noticeable among students from the lower halves of each group and it was found that a higher percentage of the original group of coop students received B.S. degrees in engineering.

Comparisons of the quarter-by-quarter mean grade points of both groups indicated some degree of superiority for coop students in each academic quarter. They also revealed that the grade points accumulated by coop students continuously improved from the seventh to the eleventh quarter, while the grade points accumulated by regular program students fluctuated. The superiority in grade performance appeared to be greater for the lower half of the sample groups. Although evidence supports the hypotheses, the author warns that the differences in performances were not of great enough magnitude to draw positive conclusions. Tables and graphs are included.

Brightman, Richard W. Attitudes, Persistence, and Performance of Cooperative Work Experience Students. Unpublished paper. Coast Community College District, May 1973.

Proponents of cooperative education have often claimed that participation in coop programs increases a student's academic performance, increases his/her tendency to persist in college, and improves his/her attitude toward classroom studies and toward education in general. This study was designed to test the validity of these claims.

The study sample consisted of an experimental group composed of students participating in coop programs at Orange Coast and Golden West Community College and a control group composed of students enrolled in a required introductory psychology course at Orange Coast. All students sampled were less than 30 years of age, had completed less than 30 units of college work, were "day students," and were enrolled in the Coast Community College District for at least 6 units of work during the semester during which their attitude changes were measured (Fall 1972). Given these restrictions, 406 of the 884 coop students and 340 of the 386 psychology students were qualified to participate in the study. All tests were administered to the psychology students in class; tests were mailed to the coop students. This resulted in a total of 87 coop students and 209 control group students participating in the study. Compared to the control group, the coop students studied were about three years older, worked approximately 14 hours per week more, had completed about 12 more units of college work, and aspired to lower academic degree levels; in addition, more coop students were married and their fathers typically had less education.

The study focussed on the short-run changes in attitudes occurring during the course of one semester. Student attitudes toward education in general were measured via the Education Scale (Rundquist and Sletto, 1936); the Scale to Study Attitudes Toward College Courses (Hand) was used to measure the attitudes of the experimental group toward their coop course and the attitudes of the control group toward their psychology course. In order to measure changes in attitude, each test was administered twice: once during the 4th to 7th weeks of the semester and again during the 15th to 18th weeks. During the post-testing procedure, coop students were also sent a questionnaire designed to ascertain their opinions of the coop program. The 1973 ACE Student Information Form was also administered to all students. Student grade performance and persistence was ascertained by examining college records.

Data analysis revealed that, compared to the control group, (1) more coop students changed their attitudes positively toward education in general and toward their course in particular; (2) after a semester's experience, the coop students showed a more positive attitude toward education and their course (the magnitude of the differences, however, was not great for attitudes toward education and not meaningful for attitudes toward the course specifically); (3) coop students persisted longer only in the sense of maintaining a work load more nearly equal to that of the previous semester if they re-enrolled; (4) coop students attempted more units per semester and earned more grade points; and (5) coop students completed a larger proportion of the work they attempted. The groups were similar in persistence level as measured by the proportion of units completed in the semester as a percentage of the units enrolled in at the beginning of the semester and by the proportion of those enrolled at the end of the semester enrolling in the following semester. Coop students identified income earned and on-the-job experiences as the most valuable features of the coop program; they rated the on-the-job component by itself or combined with classroom work as more valuable to them in terms of developing skills, improving work habits, preparing for advancement, and settling career plans than the academic components of the program alone.

It is concluded that the behavioral changes uncovered by this project provide little evidence that the coop program is as good as its proponents assert. Coop students apparently develop more positive attitudes toward education as a result of their pragmatic view of the program in terms of its providing funds rather than as a result of the coop program activities themselves.

Critique
by
Arthur M. Cohen

The Smith, Lindenmeyer, and Brightman studies compare coop students with students enrolled in academic programs in postsecondary institutions. Apparently, attrition is lower--and attitudes toward education higher--among coop students. But what happens in a coop program to gain this effect? Is it the integration of academic and work experiences? In at least one of the studies, this integration seems not to have been a part; students seemed to enroll primarily in order to get academic credit for working at jobs they would have had anyway. Is it because the student populations are dissimilar at the start? Matching freshman students on the basis of age and IQ alone may miss an essential ingredient, the desire or intent to stay with a chosen endeavor.

These types of two-group comparison studies are well-designed and useful. But they must be augmented by more comprehensive measures of entering students and by in-depth analyses of the experiences students obtain in the programs themselves.

COMMENTARY/HISTORY

(Section I)

Comptroller General of the United States. Report to the Congress: What is the Role of Federal Assistance for Vocational Education? Government Accounting Office, 1974.

A review of the operation of vocational education programs was undertaken by the General Accounting Office (GAO) for the following reasons: (1) the Congress is considering changes in vocational education legislation; (2) over $3 billion in Federal funds have been expended since the enactment of the Vocational Education Act in 1963; (3) projections of the national economy indicate increased demand for vocationally skilled manpower; and (4) large numbers of youth leave school without skills needed for employment and many subsequently are unemployed. The review was conducted in California, Kentucky, Minnesota, Ohio, Pennsylvania, Texas, and Washington. (These seven states spent $146 million or 30% of the total $482 million of all vocational education funds spent in fiscal year 1973.) This report focuses on selected aspects of secondary and post-secondary vocational education in these seven states which were visited during the 1973-74 school year and it discusses some underlying factors that inhibit attainment of objectives. GAO findings may, therefore, not be applicable to all states and conclusions drawn herein and should not be interpreted as necessarily being typical of vocational education activities in all locations.

The Vocational Education Act authorized Federal assistance for vocational training to states primarily for distribution to local education agencies. Statistics from the Office of Education show that since its enactment, state and local support for vocational education has increased. However, the use of Federal funds has not been adequately evaluated at Federal, State or local levels. GAO reviewed the use of Federal assistance and found the following: (1) although in most states, the major portion of Federal assistance is directed to the local level, large amounts of Federal funds have been retained at the state level for administrative purposes; (2) although state and local governments have increased their funding for vocational programs maintaining a nationwide average since 1970 of about $5.00 for every Federal dollar, in some states, the ratio of State and local support to Federal support has declined; (3) for the disadvantaged and handicapped, expanded vocational opportunities have been made available; however, persons with special needs have not been given high priority; and (4) although participation in vocational programs has grown in the last decade, increased funding has not necessarily resulted in proportionately increased enrollments. It was claimed by State directors of vocational education that new Federal funds have been, in some instances, used for constructing facilities and improving quality--expenditures not necessarily resulting in increased enrollments.

The report notes that greater attention to systematic coordinated, comprehensive planning at all levels would improve the use of Federal funds and better insure that vocational education is provided in a manner that best serves student and community needs. However, State and local plans reflect compliance rather than planning; responsibility in organization is fragmented, resulting in independent and isolated planning; and data that would be helpful in planning is unavailable, inadequate, or unutilized.

The seven states reviewed in this study distributed Federal funds in a variety of ways. Some states did not direct funds to geographical areas of need or provide for the programmatic initiatives required by the law. Moreover, at times, funds were made available without adequately identifying the relative need for the program and without considering the ability of local agencies to provide their own resources. In many cases, State and local agencies did not always consider the range of existing training resources which could provide expanded training options to a larger number of people. Secondary schools, community colleges, and area vocational-technical institutes could have made better use of their own facilities and explored opportunities to share each other's resources and those of federally supported manpower programs, military installations, proprietary schools, or employer sites.

It was also found that students often could not obtain jobs in the fields for which they had been trained. These factors were found to affect the relevancy of existing vocational programs: (1) work experience often has not been an integral component of the vocational curriculum; (2) responsibility for job placement assistance has been routinely assumed by schools; (3) follow-up on graduates and employers has been marginal or nonexistent; and (4) barriers such as age, sex, and entrance requirements have restricted access to training and employment.

With the goal of providing sound expansion of vocational opportunities and of increasing program effectiveness, GAO made these recommendations to the Secretary of Health, Education, and Welfare (HEW): (1) to identify and accumulate data about strategies for providing vocational education that are catalytic and offer the greatest payoff and review the use of Federal funds to insure that they serve the catalytic role intended by the Congress; (2) to develop within States an improved approach to planning which will better meet State needs as well as provide information necessary to monitor and evaluate adequately Federal program expenditures; (3) to clarify the roles of various organizational entities within HEW involved in occupational training and implement some mechanism by which these jurisdictions can engage in coordinated, comprehensive planning; and (4) to expand efforts to develop labor market data in a form which will better enable vocational planners at State and local levels to match occupational training with manpower needs, by working cooperatively with the Department of Labor, and providing technical assistance to States for training vocational planners in the use of such data.

HEW generally agreed with these recommendations, although it did not entirely agree with GAO's interpretation of the catalytic role intended for Federal Assistance. These differing interpretations are discussed in Chapter Two of the report.

Further recommendations in this report include the following suggestions to Congress regarding the amendment of the Vocational Education Act: (1) setting a limit, as provided in other Federal education legislation, on the amount of Federal funds that can be retained at the State level so that more funds can be made available for direct services to program participants at the local level; (2) requiring states to use a portion of whatever Federal funds are retained at the State level to improve the planning process; (3) requiring that Federal funds be used primarily to develop and improve programs and extend vocational opportunities by limiting the amount of Federal funds that can be used to maintain existing activities; (4) adopting one or several options with regard to providing programs and services for the disadvantaged and handicapped if the Congress believes that these two groups should receive priority attention in the utilization of Federal funds. Two of the options available are: a) requiring states to match Federal set-asides for disadvantaged and handicapped at the same level they are required to match regular or part B funds (50-50), thereby insuring state and local involvement in and commitment to these efforts and, b) increasing the percentage of the set-asides for the special need categories; (5) establishing as a legislative policy that Federal funds will not be used for construction except in instances in which there is adequate justification that additional facilities are needed after thorough consideration of alternatives; (6) requiring that Federal vocational funds directed to local educational agencies for problems be used for those skill areas for which existing or anticipated job opportunities, whether local, regional, or national, can be demonstrated; and (7) requiring that schools take responsibility for job placement assistance and follow up in Federally supported vocational education programs.

Critique
by
Arthur M. Cohen

This study used the following procedures: examination of documents, discussions with program directors, and consultations with members of advisory committees and the business community. It was a review of existing operations, not an attempt to assess their impact. The funding channels and utilization of funds are criticized because they seem to relate only marginally with program benefits. More often they are used to provide continuing support and capital improvements in existing programs. The study points up the lack of consistently gathered data that is utilized in program expansion, modification, and efficiency. The major conclusions are carefully drawn.

Documented Employer Benefits From Cooperative Education. The Report of a Study for Northeastern University. Cambridge, Mass.: Arthur D. Little, 1974.

The objective of the study is to identify, document, and, where possible, quantify the benefits selected employers derive from their cooperative education programs. The study is the pilot stage of a two stage nationwide study designed to stimulate a nationwide expansion of cooperative education by demonstrating that significant benefits can accrue to participating employer organizations. Since not much documented evidence or data exists on employer benefits such study was deemed necessary by authors to illustrate the benefits actually being derived from cooperative education by a small sample of employing organizations "known to be effectively managing their cooperative education programs."

A review of the literature on cooperative education was done to identify potential employer benefits from participation in a cooperative education venture. Subsequently, a sample of six organizations was selected. Their key managers and administrators of cooperative education programs were interviewed (case-study approach) to ascertain the extent to which the potential benefits were actually being derived. The six organizations were selected as to vary in size, economic sector and type of activity. Further, a "policy level commitment" and general consensus of cooperative educational leaders that said program was effective were deemed as necessary prerequisites by authors for inclusion in sample. Thus, 1) General Electric Company; 2) Xerox Corporation; 3) Pioneer Cooperative Bank; 4) Liberty Mutual Insurance Companies; 5) Social Security Administration; 6) Wellesley (Massachusetts) Public School System were chosen as the sample organizations.

Structured interviews and organizational background such as personnel information were used for data collection and analysis.

The study found that employers could derive benefits from their cooperative education programs in one or more of the following three time phases:

Phase I - Preprofessional (Student) Employment Phase benefits include: a) source of preprofessional or paraprofessional manpower; b) generates professional released time; c) improves personnel selection process; d) enhances relations with colleges and other students.

Phase II - The Recruitment Selection, Hiring Phase benefits include: a) facilitates entry level recruiting; b) facilitates assessments of employee quality and promotability; c) improves access to and by minority employees; d) improves cost-benefit ratio in training and recruitment.

Phase III - The Permanent Professional Phase benefits are not so clearly attributable to former cooperative education participation by employees as are benefits in Phase I and II. That is, in most cases not enough data exists to differentiate between former cooperative education employees and regular employees. The authors list the following potential benefits, however, : a) higher average retention; b) potential for advancement; c) staff quality, as measured by performance appraisals. The authors conclude that more data is needed to actually demonstrate that these benefits are possible from cooperative education.

The study concludes with a list of situation problems "which an effectively managed cooperative education program can help ameliorate" including: 1) a need for economical, quality, prescreened, stable, paraprofessional or preprofessional manpower; 2) a need for professional release time; 3) a need for recruitment use of college faculty and counselors, thus a reduction in cost of campus recruitment; 4) a need to increase access of minority groups to professional level jobs by members of minority groups; 5) a need to reduce personnel costs through a reduction in turnover, and cost of training.

Critique
by
Lewis Solmon

The authors knew what the conclusions would be before they did the study, i.e., they knew they would show benefits of coop education programs. They argued that if benefits could be shown to exist, expansion of coop education was justified. They ignored costs associated with these benefits, in particular, the alternative uses to which funds for coop education could be put. "Selected" employers were chosen to insure desired results. The people interviewed were "key managers and administrators of coop education programs." These individuals had to be positive about coop education or the programs could end and lose them their jobs (Remember--social workers are among the strongest advocates of welfare). Apparently, interviews named potential benefits and asked the extent to which these were being derived. This is "leading the witnesses." Those not considering coop education effective were dropped from the study. The study provides a useful list of possible benefits from coop education, but we do not know: (a) in what proportion of all coop education programs they exist and (b) whether these results could be more efficiently achieved by alternative means. Many of the benefits might be useful in periods of tight labor markets, but not so valuable during periods of high unemployment (when experienced workers can be hired at relatively low cost).

Holden, Richard. Crisis in Cooperative Education. Prepared for the Eleventh International Conference for Cooperative Education, St. Louis, Missouri, April 15-18, 1975.

After the original $1.5 million a year USOE support of less than 100 programs of cooperative education each year from 1970 through 1973, Congress appropriated $10,750,000 per year for coop education. This amount has supported 350 (out of about 650-750 requested) programs a year through 1975. Ten million dollars of this appropriation has been authorized each year for planning, establishment, expansion and implementation of coop programs, and the grants averaged $30,000 yearly for no longer than 3 years. These funds do not include student compensation or programs for other than alternating periods of work and study. The remaining $750,000 has been used for training and research activities, an important addition in 1973 that will need more funding in the future. Although his reasoning may be justified, the President has requested less funding in 1976: $8 million instead of the $10 million for planning, etc.; and nothing for training and research. This does continue to fund about 100 new programs each year while meeting 2nd and 3rd year program needs; and hopefully the congressionally mandated evaluation of cooperative education will help identify training and research efforts to be undertaken in the future. Within USOE, Title IV-D and the Cooperative Education Section have a 5-person staff under Sinclair Jeter in the Training and Program Development Branch headed by Dr. John Chase. This is one of two branches within the Division of Training and Facilities, which this author directs and which is a consolidation of two earlier divisions--University Programs and Academic Facilities. These are all part of the Bureau of Postsecondary Education which was the Bureau of Higher Education before January, 1974.

President Ford's suggestion about future directions in education were followed by six points from the Commissioner of Education on the collaboration of education with the world of work: (1) education means more than schooling; (2) students can and do learn from workers in the community as well as from certified teachers; (3) the best way to prepare students for the real world is to let them experience it; (4) classroom contact with people from the world of work helps students decide career choices; (5) if employers want young workers ready and willing to work, they have a responsibility to aid in the readying process; (6) the business and labor communities have much to learn from as well as much to contribute to education. Questions then arise as to where this leaves coop education and how extensive it should and can be in the future. Coop education is not for everyone, be they students, employers, or colleges; but there are advantages for all three groups. For students, coop education enriches learning through a laboratory-like experience, through more programmatic instruction, through exposure to the work world and through financial support. It also offers an opportunity to find a meaningful career; but these advantages must not overshadow the educational need for "pure knowledge" or for the arts and humanities that do not often pay a living wage in their beginnings. For the employer, mounting evidence shows that coop education helps (1) lower hiring and training costs; (2) lower turnover; (3) develop more effective relationships with colleges and better relations with the surrounding community; (4) provide more productive employees who can accept increasing responsibility; and (5) provide more satisfied employees who have found a qualified position earlier in life. There are advantages as well for the institutions; but there is not a precise guide for a college in deciding whether or not to initiate a coop education program. There are, however, some questions which a college must answer before making a decision and applying for a grant:

(1) Is the college really committed with full backing of the college president and support from the faculty? (2) Is there evidence that students will participate? (3) Can the college afford coop education, for even with a grant it does cost the college in support staff and course offerings? (4) How will the program be funded at the end of the grant, for it takes up to five years to amortize the start-up costs of a program beyond the Federal support?

Coop education can achieve its full potential with cooperation among all concerned and with leadership from CEA and CED in partnership with the National Commission for Cooperative Education.

Critique
by
Arthur M. Cohen

The assumptions presented in this study do not stem from hard data. Rather, they offer conventional views; schools and industry should cooperate; coop education produces better employees; and so on. The suggestions on the need for institutional commitment before launching a coop program are sound.

Hoyt, Kenneth B. An Introduction to Career Education. A Policy Paper of the Office of Education (DHEW). Washington, D.C , Nov., 1974.

This policy paper is a revised version of an original draft written in February, 1974. To assess the degree of consensus on career education, the draft, along with a study guide including questions asking for agreement or disagreement with statements in the draft, was distributed to a wide variety of people in 50 states. It was reviewed by participants in a USOE mini conference attended by teachers from each state, state department of education personnel, and national leaders and experts in career education. A high degree of consensus was found, and on the basis of certain recommendations resulting from their reviews, the final paper was revised and is summarized below.

The call for the implementation of career education, as part of a total program in educational reform, is in response to criticism levelled against American education from students, parents, the business-industry-labor community, out-of-school youths and adults, minorities, the disadvantaged, and the general public. These criticisms are as follows: (1) the student's deficiency in basic academic skills; (2) the student's inability to see a meaningful relationship between school and the practical world of work; (3) the inability of the educational system to meet the needs of students not becoming college graduates; (4) the surplus of over-educated and under-educated workers which causes worker alienation; (5) the student's lack of skill needed to make the transition from school to work; (6) the inadequacy of career opportunity programs to reflect the growing need for women in the work force; (7) the inability of our current educational system to meet the needs of continuing and recurrent adult education students; (8) the insufficient attention paid to existing learning opportunities outside formal schooling; (9) the inadequate role of the general public in formulating educational policies; (10) the American educational system's failure to meet the needs of the economically disadvantaged and minorities; and (11) the lack of emphasis on post-high school education which is below the baccalaureate level.

Each of the above criticisms focuses on the relationsips between education and an individual's life style. Proposals for educational change must answer some common elements of these criticisms and one commonality is the concept of work which the author defines as "a conscious effort, other than that involved in activities whose primary purpose is either coping or relaxation, aimed at producing benefits for oneself and/or for oneself and others." This concept serves as a rationale for career education, for it provides for the needs of the individual for personal growth and accomplishment as well as for societal needs for productivity. Based on this rationale, along with the generic definition of career education--"the totality of experiences through which one learns about and prepares to engage in work as part of her or his way of living"--certain basic conceptual assumptions have been formulated. These include the notion that career education must become part of one's total life style and that it must be completely integrated into the fabric of American life and include people of all ages, regardless of sex, race, economic class, or physical or mental ability.

Career Education also has specific programmatic assumptions which the author lists in the form of testable hypotheses to illustrate that although more research is needed, there is adequate knowledge for the successful implementation of a career education program. The initial implementation of this program can be accomplished with the existing facilities and personnel. However, certain new tasks must be undertaken by teachers in the types of materials they use and in the skills they teach; by the business-industry-labor community in the types and amounts of work opportunities made available; by counselling personnel in the way they help teachers and guide students; by the home and family of the student in the development of good work habits, attitudes, and values, and by educational administrators and school board members who will provide direction and support for the program.

Learner outcomes in career education programs will vary, but for the purposes of evaluating the progress of the programs, certain developmental goals for an individual who leaves a formal educational system include competency in skills, good work habits, career decision making skills, and awareness of the availability of continuing their education once they have left the formal system of schooling.

Basic educational changes championed by career education which are necessary to bring about educational reform include increases in the amounts of and methods used in vocational and occupational education courses offered on the secondary and post-secondary level, the use of non-certified personnel from the business-industry-labor community as resource persons in the school's instructional program, and an increase in the participation of students, teachers, parents, and members of the community in the formulation of educational policy. Inherent in these changes are the following implications: (1) the implementation of a career education program will be inexpensive, but a total education reform will be more expensive, requiring an increase in funds for public schools and public higher education; (2) a portion of these additional funds, supported with tax dollars, could be gained by integrating current remedial and alternative educational programs outside the public school and post-secondary public school system with the career education program; and (3) all segments of society--community service agencies and the business-industry-labor community--must join in a comprehensive effort to meet the continuing needs of education.

Critique
by
Arthur M. Cohen

A general good outline of and rationale for career education. The author's implications are mixed. He is right when he says implementation of career education will be considerably less expensive than genuine reform. But his call for an integration of all segments of society in an effort to further career education are too grandiose to be taken as pointing the way to policy. The procedure was to draft an appeal, distribute it to a sympathetic, like-minded audience, and produce an exhortation.

Hunt, Donald C. Fifty Views of Cooperative Education. (2nd edition) Detroit, Mich.: University of Detroit, Midwest Center for Cooperative Education, 1974.

This publication is a compilation of the notes of the faculties of the several Institutes on Cooperative Education Administration conducted during the 1972-74 period under a Title V-E EPDA, Grant from the USOE, Bureau of Higher Education. The views are organized loosely into eight sections: Philosophy, Employer's Discussion on Cooperative Education Programs, Academic Credit for Cooperative Training Experiences, Faculty and Public Relations, Minority Students and Cooperative Education, and Federal Funding.

A company engaging in cooperative education stands to gain a number of tangible benefits. Because coop students tend to stay with the company (70-80%), recruitment problems are reduced. They are loyal, exhibit a lower turn-over rate, are more immediately productive, are able to apply their schooling sooner. Intangible benefits are seen in the fresh ideas brought to the company and the stabilization of a local work force.

The potential benefits of coop education must be stressed when coop coordinators are recruiting employers. When objectives for employers and students are developed, mutually beneficial situations can be found. The coordinator can look for employers in the trade papers, the College Placement Annual, the lists of the Civil Service Commission, and through contacts with local Personnel Administration groups and the Chambers of Commerce. Employers are interested in long-range planning, so the coordinator must create an aura of permanence about his program.

All of the company benefits depend upon student satisfaction. The selection process is, therefore, the key to a successful program. The company sees the prospective student as a future employee, students should be selected on a similar basis. The coordinator, working with the personnel director should formalize procedures, obtain job analyses and specifications, and develop flexible maneuvers when mismatches do occur. The company must consider its long-range plans, employment needs, job availability, and the types of academic majors appropriate to those positions.

The coordination of the program is complicated. The coordinator should be trained in education and counseling and have had personal work experience. He should have a direct line to the Dean of Instruction or the President. The student/coordinator ratio should be 50-75:1 for centralized operations and 30-50:1 for decentralized ones. With the coordinator's guidance, a training plan should be developed for each student and the employer must be able to evaluate the progress of his student employee. The cooperating employer must understand his role as educator and provide the student with a well planned series of educational experiences. A company coordinator who was once a coop student himself can be helpful. The student must have started career goals and have the ability and maturity to be productive in the business world. The coordinator will have special counselling problems with the liberal arts student who often does not have definite career objectives. It is difficult to find him work related to his academic major. Still, these students can profit from coop experience and should be given the opportunity.

To facilitate the countless personal transactions involved in the operation of a program, forms should be developed to keep adequate records of student and employer activities, objectives, and progress. The purpose of the forms is to help the coordinator, not bury him in useless paperwork.

Because of the growth of coop education in the two-year institution, special problems of articulation have arisen. About 33% of the two-year schools can provide the first half of a baccalaureate degree. The two-year, alternating plan is best suited to articulation. Three-year programs are too long; parallel programs do not lend themselves to the more intense demands of senior institution course work.

The problem of articulation also points to the evergrowing debate over academic credit. "Real" credit hours and grade points will assure the faculty that students are actively pursuing knowledge. Employer/educator evaluation makes both the company and the student responsible for proof of learning. Accreditation will also involve faculty in the program, thus helping to overcome one of the largest obstacles to success.

Faculty hostility stems from a reluctance to teach 12 months, the necessity to repeat course materials, their own non-coop, university training, and a fear that the coop experience may turn a student away from their major field.

Minority students must be encouraged to participate in coop education. No lack of jobs exist among employers anxious to fulfill affirmative action obligations. But the students and their parents seem to see the program as an inferior form of financial aid. As with all the other problems, good public relations work can overcome this. It also appears that minority coordinators attract minority students.

Federal support has boosted interest in cooperative education at all levels of education among students, educators, and administrators. But because many administrators are not committed to the idea of cooperative education, many programs may fold when the federal funding expires.

Critique
by
Arthur M. Cohen

This is a useful compilation of views garnered from staff affiliated with coop programs. Problems are articulated along with notes on program strengths and weaknesses. A noteworthy conclusion is that many programs will not survive the demise of federal funding--opposite that reached in the survey of program heads reported by Wilson in 1975. The consensus of opinions is suspect because minority views may not be represented. Are we to believe a small, potentially biased sample of program heads responding individually or their opinions offered in concert?

Rogers, David. "Vocational and Career Education: A Critique and some New Directions." Vocational and Career Education, May 1973, 74, 471-511.

We have gone from fad to fad in vocational education without many fundamental improvements and with more problems caused for the USOE than solved. More important reform movements, including the career education movement whose philosophy demands change in the whole educational system, are seldom given a chance to be incorporated system-wide due to political and organizational obstacles, general prejudices, mismanagement, fragmentation, duplication of efforts and lack of sensitive process studies of their successes and failures. Although reform is called for on all sides, political haggling causes duplication of programs and lack of productive linkages as well as conflict and competition for funding and control. This situation leads to a proliferation of separately-funded categorical programs, each jealous of its future and few willing to communicate with others in order to conserve efforts or to learn better methods.

Vocational high schools are the major agency for occupational education; but contrary to claims, they are seldom "dumping grounds" for minorities. In fact, overall student percentages reflect national percentages; and some states with economic development programs selectively recruit middle class students to save time and money in the extra services usually required for the disadvantaged. Studies also show that vocational high schools do not train well for particular jobs and that one-half or more graduates take unrelated jobs. The dropout rates are higher than in the general high schools, which indicates that the time spent there is too long. It might, therefore, be better to shorten the programs by one year while providing more basic education and generalized skills. Unlike vocational high schools, proprietary schools train for employment in emerging occupations; however, there is little data on their progress. There is next to no data on two other vocational training groups: employer-on-the-job training programs and military schools, although studies show selective recruitment of high status men for the better military vocational-technical programs. OEO agencies, Neighborhood Youth Corps, Job Corps, etc., were developed because of public schools' failure to reach ghetto and rural youth, and they account for 30-40% of all manpower training funds (ca. $25 billion per year). Because they have the most difficult job, comparison with the other agencies is difficult, although studies show them fairly successful. Although community colleges are considered the most cost-effective of all post-secondary vocational training agencies, their image suffers under the elitist attitudes in America. They also suffer from (1) a high dropout rate (probably due to the large minority student population), (2) poor state-level administration, and (3) confusion and disagreement about their function.

The problems with all effectiveness studies of vocational education include differing data bases, lack of control groups, short time periods for data collection and differences in student populations when agencies are compared. This necessitates more data and more sensitive studies, especially: (1) more nationwide evaluations based on random samples, with the best control group comparisons possible; (2) more longitudinal studies that follow graduates over many years and monitor their income and career experiences; (3) more attention to different types of programs within vocational high schools to ascertain which are most effective and why; (4) more data on the social background of students to see how these factors affect performance; (5) data on the effects of different program components, such as basic education, counseling and placement services, skills training curriculum and industry participation in curriculum development;

(6) studies in different time periods to account for variations in economics, priorities and administrators. Most lacking, though, are qualitative studies of the progress of innovative programs.

Effective reform should include program, delivery system and implementation strategy, with all three being considered together. Reform should change the vocational system's isolation from the economy, its institutional fragmentation, its separation from academic education, its lack of program flexibility, its poor supportive services, its bad management, its lack of a coherent program or intellectual base, its funding patterns, and its insulation and lack of responsiveness to outside pressures for reform. After determining the target populations, programs should be well planned to serve those groups, be they the disadvantaged or the whole population. The vast majority of federal funds should be allocated, though, to programs for the disadvantaged. A strong effort should also be made to de-emphasize skills training for particular occupations at the high school level. By integrating all programs, a progressive treatment of career education could be effected with secondary schools concentrating on basic education and general work skills and community colleges providing specific advanced career training that could build on experiences in high school and provide avenues for further training. This would minimize the premature tracking of students, allowing for flexibility and options for students between classroom and work.

Unification of all the vocational training agencies would minimize duplication and political conflict, better develop overall program priorities, establish better agency linkages and improve program development and management. It is better to take existing manpower agencies and work from there, and the Manpower Area Planning Council within the Department of Labor already exists as a possible unifying super-agency. Vocational education and HEW are not taking part in this council presently, but they might be integrated by down-playing the powers of the Department of Labor and by providing incentives.

The power of review and advisory councils could be built by federal funding and by the expansion of their membership base to include students, citizen groups, employers, unions and other vocational agencies. This may help force greater accountability and change from traditionally insulated and encrusted state vocational education departments. In fact, closer school-employer linkages could then be effected, where before employers had met with opposition from school officials; and their advice would aid in curriculum planning, teacher training, career education and intern programs, counseling and placement, as well as in management reforms. Studies should also be made of successful European relationships between work and schools, for jobs for American students are limited and seldom any more than a financial aid to progress. Furthermore, programs should be developed both in and outside traditional agencies, with the outside programs contracting out to both public and private agencies, thus giving traditional programs more options. In general, research attention should be given throughout to evaluate as many programs as possible, because not enough is known yet about the feasibility and success of all the various occupational program models.

Critique
by
Arthur M. Cohen

Calls for reform are invariably based on perceived values and purposes which are more easily identified than implemented. The author calls for merging vocational education with academic education and with the world of work and for integrating career education in secondary schools and two-year colleges with each segment undertaking defined roles. The argument presupposes linearity of schooling with students progressing through primary school, secondary school, and community college in a neat, age-graded curriculum. Basing policy on this assumption is dangerous if for no other reason than that the schools and colleges are performing numerous other roles for a population that drops in and out of the formal education structure successively and repeatedly. Confine one type of training to one level of schooling and we stand to lose opportunity.

The author is on much firmer ground in his calls for research and evaluation. These can and should be implemented.

Tyler, Henry T. "Report of the Study of Work Experience Programs in California High Schools and Junior Colleges." Bulletin of the California State Department of Education, July 1956, 25 (3).

This study was undertaken in 1954 in order (1) to develop suitable definitions and classifications for work experience programs, (2) to ascertain the current status of work experience programs in California schools and identify problems of all types; and (3) to propose possible solutions and recommend acceptable patterns of operation for work experience programs.

After locating those schools with work experience programs, preliminary interviews were undertaken with administrators, students and employers connected with well-established programs, reaching a total of 87 schools with 36 programs. An additional inquiry was sent to the 69 schools (66 responded) which had abandoned earlier programs. And a comprehensive form was sent in January 1955 to the 166 public high schools and 34 junior colleges (100% return) which had working programs, while 5 meetings were held with program personnel throughout the state (75% attended of those invited). Because vocational programs are usually well-regulated and well understood, major attention was given to those programs not primarily vocational in nature and hence not reimbursed from federal or state funds. For comparison purposes, the study differentiated between (1) schools in large metropolitan systems and those elsewhere and (2) high schools and junior colleges. Other limits are noted, but in general, the study confined itself to situations in which public high schools and junior colleges accept for credit approved work stations that are under some degree of supervision by the school and that are usually run consecutively with the student's class learning. A study was also made of legal authorizations in order to determine present limitations of work experience and to recommend future programs and changes in the laws.

"Work experience education" was found to be a systematic plan for youth to gain realistic employment experience while in school through part-time work under the supervision and guidance of the school. There are three separate types of work experience education programs, each with its own focus and suggested standards: (1) exploratory programs aid youth in high schools and over 16 years in making wise and realistic evaluations of their tentative occupational objectives in carefully supervised non-paid work situations in conjunction with "career choice" classes; (2) general programs provide youth (16 years to first year junior college) with an opportunity to learn good work habits and to experience a variety of real work situations not necessarily related to career choice, but to in-school learning; (3) vocational programs help youth (some high school juniors, but mostly those in higher levels and always with clear career objectives) enter their chosen occupations through part-time and a closely related educational program. These definitions should be adopted state-wide to facilitate program uniformity and greater agreement about standards and steps should be taken soon to prepare and publish a handbook for work experience education.

Findings on high schools are as follows: (1) high schools with large enrollments are more likely to have work experience programs (61-71% of total) than those with low enrollments (13-32%); (2) in stating the perceived purpose of work experience, high school administrators ranked the educational function first, the exploratory and occupational functions second and equal, and the financial assistance and dropout prevention functions third; however, when rating the values of work experience in their schools the same group ranked financial assistance first most often; (3) attendance records for remaining in the program are the same for all students, with precautions taken to insure against a student reporting work when not in school the same day; (4) work experience students obtain jobs for themselves as often as school employees obtain jobs for them; (5) 68% of the high school supervisors visit employment stations, 58% have employers submit written evaluations of student work, and 49% of the high schools conduct in-school interviews of work experience students to aid supervision, while 40% phone employers; (6) 118 high schools do not develop written training contracts with employers, but 113 conduct oral conferences with the employers at the time of each placement; (7) students are excused from school for work at least one period per day and at most two periods; (8) 55% have age requirements for eligibility, with 65 schools requiring 16 years, 11 requiring 14 years and 8 requiring 15 years. In comparison with the schools in large metropolitan school systems, other schools in the state: (1) allot less time to supervision (6.5 hours/week vs. 11.8 hours/week); (2) are less likely to permit students of 10th grade level to enter work experience programs (1/2 vs. nearly all), while 3/4 allow 11th graders to enter and only 1/4 allow 9th graders (vs. 1/3 in metropolitan areas); (3) more often demand a particular scholastic standing for eligibility (37% vs. 15%).

In comparison with high schools, the 34 (out of 60) California public junior colleges that have work experience programs: (1) enroll more students in work experience programs; (2) place more emphasis on the vocational type of work experience and less on the general program typical of high schools; (3) have as many in-school jobs available to work experience students; (4) emphasize instructional and vocational purposes more than do high schools which emphasize guidance; (5) are more likely to have active lay advisory committees related to the program (47% vs. 11%); (6) are more likely to require work experience students to take special classes (66% vs. 19%), which in vocational programs are devoted to skill development and in general career programs are devoted to discussion of employer-employee relations, of work attitudes and of problems arising out of work experiences; (7) are less likely to record work experience on student transcripts (33% do not vs. only a few) or cumulative files (25% do not); (8) are similar to high schools in that a higher percentage of both types of schools stated that they require the student to maintain satisfactory grades to remain in the program (71%-junior colleges) than had stated they had a scholastic requirement to enter it (50% in junior colleges, usually a C average); (9) tend to feel work experiences cost more than regular programs (50%) than do high schools (35%), and those junior colleges which discontinued programs tended to do so because of cost more often than did high schools; (10) show as much variance as high schools in the amount of credit allowed for work experience with both tending to allow for both credit and pay, the pay being mostly at prevailing rates for the work in junior colleges and only seldom below minimum wage in high school. The number of work hours per semester period of credit in high schools ranges from 7 hours work for one semester credit to 100 hours for the same credit with few problems in funding from the state. Junior colleges, however, vary considerably in their methods of counting work for apportionment purposes; 5 count none of the work hours, but most allow a maximum of 15 hours a week. All but one junior college open their programs to both freshmen and sophomores. And the direction is likely to be under a dean of instruction, a director of vocational education or the head of a vocational department, with only a few having a full-time person in charge.

A sound work experience program was found to have the following essential elements: (1) includes one or more regular school courses; (2) allows only part-time employment; (3) is initiated and controlled by the school (high schools by guidance department; junior colleges by vocational department); (4) has well qualified staff and administrative support; (5) coordinates employment and school learning; (6) has employers and coordinators cooperating in evaluation; (7) keeps careful records; (8) uses an advisory committee of representative community leaders. In order to assure adequate staff time for the successful operation of work experience education, assignments of coordinators should not exceed, on a full-time equivalent basis, 50 students for an exploratory type high school program, 72 students for a general work experience education program in high school or junior college, and 72 students for a vocational work experience education program when coordinated by someone other than the vocational teachers. During the initial stages of the growth of a program, the minimum daily time allocation to coordinator for the promotion of such a program should not be less than two class periods. It is also recommended that no fewer than 36 hours of work extending through at least 12 weeks of a semester be required to earn one semester period of credit in high school and that no fewer than 64 hours of work extending through 12 weeks of a semester be required to earn one unit of credit in junior colleges. Essential facts concerning work done by students in the program should regularly be entered on students' permanent records. Legislation should also be sought to permit the counting, for apportionment purposes, of hours worked by a high school work experience student who was legitimately absent from some of the classes required for a minimum day's attendance. The same should occur for junior colleges, allowing accumulation of both class attendance and work experience hours when performed under specified conditions and needed authorizations.

Critique
by
Arthur M. Cohen

This document has historical interest but not much more. Done in 1954, the study employed a survey directed to program heads in schools that had previously abandoned coop programs and interviews with administrators, students, and employers in currently operating programs. The high response rate and care in survey design are worthy of note.

Cohen, A. J.,and Frankel, S.M. Data Analysis Report: An Assessment of School-Supervised Work Education Programs. Santa Monica, Calif.: Systems Development Corporation, 1973. (ED 081 999)

This study was designed to examine the different configuration of work eduation programs currently operating in the United States, to determine the degree to which different kinds of programs might be modified or expanded. The target population consisted of a stratified sample of 50 programs. 36 secondary and 14 postsecondary institutions supervising a total of 36 occupational training, 14 dropout prevention, and 6 career exploration work education programs were selected. These were located as follows: 15 in farming regions, 11 in bedroom communities, 9 in single industry areas, and 15 in major industrial/business centers. All of the career exploration programs investigated were operating at the secondary level, as were 12 of the dropout prevention programs, and 18 of the specific occupational training programs.

Specific occupational training programs were defined as cooperative education programs in which the job is related to the student's training program. Dropout prevention programs are those which provide students with work designed to help them gain the financial means to stay in school. Career exploration programs are those in which students are given the chance to explore different vocational opportunities by observing different types of workers and by performing tasks for pay in different kinds of work settings.

Data were collected via interviews with program administrators, participating and non-participating students at each school, participating and non-participating employers in each area, and participating and non-participating union officials in each area. All data are extensively analyzed and most are presented in graphic and/or tabular form.

Conclusions indicate that cooperative occupational training programs generate the most enthusiasm among students, employers, and school officials. Of the three kinds of programs studied, they were the most capable of meeting the expressed needs and interests of all parties involved. They were also the most likely to provide job-related instruction in school, to have follow-up programs, to have advisory committees, to provide job placement services, to have a high rate of employment in related fields, and to provide students with jobs that fit their career plans, have a high level of responsibility, and lead to a high degree of student satisfaction. On the other hand, cooperative programs were the most likely to discriminate against students on the basis of student attitude and sex, to restrict their programs to students with rather conforming middle-class behaviors, and to interfere with the student's other activities such as school work, dating, and sports. They were also least likely to reduce student absenteeism.

Career exploration work education programs were found to be disorganized and ineffective. None of the six programs studied provided students with a systematic exposure to several different kinds of jobs and, compared to the other kinds of programs investigated, they were the least likely to assist students in choosing an occupation. They had developed no effective job rotation mechanisms and had no standardized formats of operational configurations. They also received the lowest level of school support and coordinator time.

Dropout prevention programs did not provide students with related classwork or intensive vocational training. However, when viewed in terms of their objectives (to keep students in school by providing them financial assistance), they appear to be successful. They are more likely than the other kinds of programs studied to provide students jobs paying at least minimum wage. They are second to specific occupational training programs in their ability to improve students' attitudes toward school.

Analyses of employer-related factors revealed that the purpose of the program had very little impact on employer attitudes toward the program and that employers tend to favor secondary programs more than postsecondary programs. They also showed that higher employer ratings of individual students were associated with greater employer satisfaction with the program as well as with greater student job satisfaction

Analyses of pay factors indicated that employers paying higher wages were significantly less likely to rate the program's overall quality as excellent. Employers who paid students less than they would pay a regular employee for the same work were significantly more likely to rate the program's overall quality as excellent. On the other hand, students who were paid for their work were slightly more satisfied with their jobs, while students who were not paid were somewhat more likely to like school better after entering the program.

Analyses of educational levels revealed that postsecondary occupational training programs are more effective than secondary occupational training programs in nearly all aspects of the program operation. They had higher ratings on job-related instruction, student follow-up, job-related placements, helping students choose an occupation, providing students with jobs that fit their career plans, providing students with jobs having high responsibility ratings, and providing students with jobs giving high satisfaction. Interestingly, secondary students earned more than postsecondary students and employers rated secondary students higher also.

Consideration of program setting indicated that programs in urban areas tended to provide higher pay but that students involved in programs in rural areas expressed more satisfaction with their work education jobs.

Analysis of student satisfaction data indicated that students who participated in work education programs were no more satisfied with their jobs than students who obtained their part-time jobs in other ways; they were, however, more satisfied with school after participation in work education programs. Participating students expressing highest satisfaction with their jobs were those who were most highly rated by their employers and who felt the most job-related responsibility.

Policy recommendations included herein call for: (1) further exploration of the concept of establishing occupational training programs with a non-paid work component, (2) expanding the scope of dropout prevention programs to include either specific occupational training or career exploration, (3) developing formal structures for career exploration programs, (4) developing more effective follow-up programs, (5) encouraging unions to actively participate in work education programs, (6) improving the effectiveness of public relations activities, (7) strengthening the role of program advisory boards, (8) discouraging discrimination on the basis of student attitudes, (9) using vocational aptitude and interest instruments in the counseling of students, (10) establishing internship programs for work education coordinators, and (11) increasing funds for cooperative education programs.

Cross tabulations by student groups and the interview schedules for all 7 groups studied are appended.

Critique
by
Arthur M. Cohen

The study sample includes a broad representation of institutions although four-year colleges are under-represented in proportion to their numbers. The systematic biases in interview techniques are not accounted for.

Some of the recommendations are not supported by the findings. Cooperative programs are seen as better than career exploration or dropout prevention programs for most purposes. But the conclusion that post-secondary programs are more effective should be qualified--employers favor secondary school programs and they favor paying lower wages. The recommendation that establishing programs with a non-paid work component should be explored seems based primarily on this latter, understandable preference on the part of employers.

STUDIES--ACROSS PROGRAMS

(Section I)

Cooperative Education Planning Study, Final Report.
Pittsburgh, Pa.: Consad Corp., 1975.

This study was designed to provide an overview and initial analysis of the varied goals and realities of cooperative education and to identify the key program issues and the indicators of program success which should be considered in the evaluation of coop education programs. Information gathering techniques included a literature review; a review of coop education proposals federally funded in 1973-74, site visits to eight coop education schools and interviews with program coordinators, coop and non-coop faculty members, coop students, and staff in order to identify initial program goals and objectives and to determine how well the current operation of the program followed the dictates inherent in these goals and objectives; a mail survey of current and past students at the eight schools, including both coop and noncoop students; and telephone interviews with past and present employers of coop students at each of the eight schools. The eight schools were chosen for their diversity in type of institution, characteristics of the student body, location, and mode of program operation; all eight were recipients of Title IV-D funds.

An examination of the 324 proposals for non-consortium coop programs receiving federal funds in 1973-74 revealed that (1) 162 of these programs are found in 10 states (New York, North Carolina, Florida, California, New Jersey, Alabama, South Carolina, Georgia, Virginia, and Illinois); (2) federally funded coop programs are more likely to be found at the pre-graduate rather than the graduate level, and much more likely to be found in public rather than private schools; (3) about one-half of the applications on file were for "planning" or "initiating" programs not yet in existence; (4) 90% of the schools with established programs do not require participation in coop for graduation; (5) 70% of the schools with established programs award credit for coop participation (mean=5.6 credit hours for 17 weeks of work); (6) minority students participate less often than white students; (7) 107 schools employed full-time coordinators and had, on the average, two such coordinators; (8) the 72 schools employing part-time coordinators had an average of 2.8 coordinators; (9) the ratio of students to coordinators for 147 schools reporting is 76 to 1, indicating that students get very little individual attention; (10) the number of employing agencies per school is 71 (since the average number of coop students per school is 82, this indicates that most employers take only one coop student; (11) most of the coop students at 42 of the schools were business and accounting majors; and (12) engineering majors were the most frequent participants in another thirty schools.

Findings based on the site visits, interviews and surveys conducted at the eight shcools are as follows: (1) there is no single, universally accepted operational definition of coop education--some programs include periods of full-time work alternating with periods of full-time study (as required by Title IV-D of the Higher Education Act), others include part-time work and part-time study in the same quarter or semester; usually work and study periods are integrated, but sometimes they are not; (2) program goals vary widely in nature and emphasis--among those identified are the following: (a) to provide opportunities for career exploration to aid in career selection, (b) to provide technical skills and experience through specific career-related coop job assignments, (c) to provide an introduction to the world of work and some practical "human relations" skill training, (d) to help break career barriers for women and minority groups, (e) to make postsecondary education financially feasible for students from low-income families, and (f) to provide a means for schools to offset tuition differentials and thereby to compete for students with less expensive schools nearby; (3) the most important element of coop program success is a balance between the differing and sometimes conflicting goals and priorites of participating students, institutional staff and faculty, and employers; (4) the key programmatic issues include the academic majors or courses of study to be included in the program, the relative emphasis on career exploration versus gaining of specific technical job experience, the importance of pay scales for coop jobs, the policies and procedures surrounding the awarding of academic credit for coop experience, the criteria for student selection, the pattern of work and study periods, the the procedures for program administration, and the tuition policies; (5) the indicators of program success against which programs can be measured must be identified based on the varying program goals and priorities rather than on any universal coop education program model.

Cooperative Education Planning Study: Annotated Bibliography. Pittsburgh, Pa.: Consad Corp, 1975.

This annotated bibliography is the result of the ongoing literature review accompanying the Consad Cooperative Education Planning Study. There are 106 entries which span the years 1960 to Winter 1975, excepting 1 article from 1933 and 1934. Searches were made through ERIC, the Cooperative Education Clearinghouse, the Journal of Cooperative Education and the New York Times Index, all but the last being very useful. In addition, the following periodicals were reviewed for articles: Journal of Cooperative Education, Schools and Society, Journal of Business Education, Educational Leadership, Daedalus, Business Education Forum, and P.T.A. Magazine.

The annotations, or abstracts, are lengthy and each notes the purpose, extent, conclusions, and suggestions of each document. A subject index is provided under these headings: Goals and Objectives; The Student and Coop Education; Institutions and Coop Education; Employers and Coop Education; History and Recent Trends; Program Descriptions; Program Development; The Role of the Coordinator; Academic Credit for Work Experiences; Cooperative Education in Non-Traditional Fields; Funding for Coop Education; Evaluations and Assessments; Handbooks, Manuals and Guidelines; and Voluntary Versus Mandatory Programs.

Critique
by
Arthur M. Cohen

This study is useful because of its comprehensiveness. Numerous techniques were employed so that findings might be cross checked and a holistic assessment made. Before repeating a study of the type, however, some strict definitions of what constitutes a coop program should be adopted. Further, the site visits to--and survey of graduates of--only eight schools offers a severely limited picture. A stratified sample that would cover all important variables demands more institutions. Nonetheless, the variety of procedures employed are worthy of note.

Eninger, Max U. The Process and Products of T & I High School Level Vocational Education in the U.S. Pittsburgh, Pa.: American Institutes for Research, 1965. (ED 012 315)

This career follow-up study represents the first attempt at a nationwide survey of trade and industry vocational course graduates. Its main objectives were to describe the essential dimensions of occupational, educational, and other relevant experiences of the graduates and to compare vocational and academic course graduates from the same schools and graduating classes in terms of these dimensions. The data was analyzed and presented in terms of three main issues: (1) general vs. vocational education, (2) vocational vs. comprehensive type of school, and (3) small vs. large enrollment schools. This study represents a descriptive task and, as such, does not attempt to provide recommendations.

Graduates were randomly selected from 50 comprehensive and 50 vocational and technical high schools located in 38 states. The 100 schools were stratified according to geographical regions, total school enrollment and type of school (comprehensive, vocational, technical and vocational-technical) in order to insure representation of the country as a whole. The main criterion for schools selected was that they have at least 3 Trade and Industry vocational courses. About 10,000 male vocational course graduates were randomly selected from the graduating classes of 1953, 1958 and 1962. Approximately 57% were from vocational high schools and 43% from comprehensive high schools.

Two different four-page questionnaires were used, one for vocational course graduates and the other for academic course graduates. They both had two pilot studies, and the revised final drafts were mailed to the graduates selected from each class. An intensive effort was made to retrieve the surveys; a combination of reminder letters and postcards were mailed at progressive intervals after the initial mailing. The returns for 1953, 1958 and 1962 vocational course graduates were 40.2%, 46.4% and 60.8% respectively. There were a substantial number of "address unknown" cases, and the percentage return by individual school ranged widely from 10% to 90%.

There were 5,500 usable questionnaires returned by vocational course graduates and 1,800 usable questionnaires returned by academic course graduates. These questionnaires were analyzed in terms of the following independent variables: (1) year of graduation (there were a larger number of graduates from 1962, a reflection of the greater number of 1962 graduates in the original sample chosen); (2) type of school attended (58.6% of the vocational trade and industry graduates came from the 50 comprehensive schools); (3) school enrollment (there was a close correspondence between the percentage distribution of the three enrollment categories-- 0-499, 500-1500, over 1500--and the percentage distribution of all trade and industry graduates); (4) geographical region (there was a close correspondence between the percentage distribution of schools offering Trade and Industry vocational programs in eight chosen geographic regions and the percentage distribution of graduates in these regions): (5) race (there was no effort made to achieve a given ratio of races in the final sample); (6) type of trade (57.4% of the total graduate sample was represented by the following five trades: machinists 16.6% ; automobile mechanics 15.3% ; electricians 11.0% ; drafting all types 7.8% ; and printing 6.9%).

Three broad areas of description, serving as derived measures with dimensions which have the highest potential for evaluating vocational education, were developed for the study. They are: (1) occupational history since graduation;

(2) educational history since graduation; and (3) present interest, activities, and affiliations. In addition to their function in describing the major dimensions of occupational and personal characteristics of vocational graduates, they explore the interrelationship of "measures to assess their potential as criterion measures for evaluating vocational educational systems." Tests of reliabilty to indicate the internal consistency of the measures and tests of stability to indicate consistency over a period of time were given to the data to obtain estimates of occupational measure intercorrelations.

In the first area, occupational history since graduation, the following results were found: Of the combined graduates of 1953, 1958, and 1962, 70.2% found their first job within one month after graduation. Moreover, 32.6%, 26.6%, and 29.6% for those three years obtained jobs which related to the trade they had studied in high school. Relatedness of job correlated inversely with U.S. unemployment rates for each graduating year studied. Also, students from vocational schools had a higher placement in jobs related to their trade than did students from comprehensive schools. Less than 10 percent of the graduates reported that tools and equipment used on their first jobs were very different from those used in school. And one third claimed that work methods differed from those used in school. Employment security, expressed as a percent of employable time in months spent in full time employment, for all graduates, was 95. Employment stability, expressed as the average duration in months of employment for each job held, was 46.5, 26.1, and 12.6 months for the graduates of 1953, 1958, and 1962. There was no significant difference in the employment stability of vocational course and academic course graduates.

About 41% of the vocational graduates fit into the second area-- post-high school education. The types of post-secondary education most frequently mentioned were military specialist school, 4-year college, correspondence courses, 2-year colleges, and public and private trade-technical schools. For accumulated college education for graduates from 1953, 1958, and 1962, the mean total of class hours indicate college credits carried up to 11 years after high school graduation. The type and size of enrollment of a school was unrelated to mean class hours of college education accumulated by vocational graduates.

Because of its emphasis on trade training, vocational education has been criticized for neglecting the education of the whole person. The third area, the graduates' interests, activities, and affiliations, provided a starting point for comparison of vocational and academic education in terms of the whole person concept. Results of the study indicated there was no difference between vocational and comprehensive school students in their conversation interests--a measure set up to compare these students. The top three leisure activities for all graduates were reading newspapers, watching TV, and listening to music. There was no difference in the range or type of activities in relation to the type or size of enrollment of the school. Organizational affiliation increased slightly with the number of years out of school. The graduates were overwhelmingly non-members or inactive members. The most active affiliation was with religious, labor, and athletic organizations, and least active with cultural, civic, and community service organizations. There was no difference in degree of affiliation among vocational and comprehensive graduates or on the basis of school size. These variables measuring the education of the whole person provide no evidence to suggest that vocational graduates have been less wholly educated than academic graduates.

Critique
by
Arthur M. Cohen

This study of graduates nationwide utilized a two-stage stratified design. The first variable was the school attended with schools stratified by locale, size, and type. The second was a random sample of graduates of those schools. This type of sampling is well employed in large scale surveys. The response rate was disappointing low, but intense follow-up procedures were effected. The findings are out of date.

Katz, Douglas S., Morgan, Robert L., and Drewes, D. W. Vocational Education and Urban Youth: A Follow-up Study of 1968, 1971 and 1972 Graduates of the Public Schools of the District of Columbia, Final Report. Raleigh, N.C.: North Carolina State University Center for Occupational Education, 1974.

The primary purpose of this study was to specify the design for a vocational follow-up system that meets the needs of the Department of Career Development of the District of Columbia (D.C) Public School System and that is capable of providing information needed for making programmatic decisions. Part of this process included surveying vocational graduates of the D.C. schools through telephone interviews for information about their post-high school experiences , while a comparative sample of academic graduates was given the same interview. To determine the informational needs, earlier follow-up efforts in the D.C. schools as well as policy papers of the Dept. of Career Development and other vocational education agencies were studied.

Five major areas that had to be covered were determined: employment, unemployment, education, community satisfaction, and life satisfaction. Letters were sent to graduates on a random list of 1,967 names (1,630 from vocational, 337 from academic high schools), which was provided by the D.C. schools from the 1968, 1971 and 1972 graduating classes. From this original group, 495 vocational graduates and 91 academic graduates were given in-depth telephone interviews. The number and distribution of academic graduates was chosen to control for differences in scholastic ability among vocational and academic high schools. Items on the questionnaire were applicable to both vocational and academic students. The items were reviewed by the Dept. of Career Development and by others, followed by a pre-test of the questionnaire. The instruments are appended to the study.

The results of the study are as follows: (1) 93.5% of the vocational graduates are in the labor force, of which 89.2% are currently employed and 4.3% are seeking jobs. Thus, vocational graduates are more often in the labor force than others of the same age group (74% national percentage). (2) Business and Office graduates tend to be employed more often and for longer periods than Trades and Industry graduates: 92.1% Business vs. 85.8% Trades now employed, and 6.7% of the Business graduates now employed and 20% Trades graduates now employed after having been unemployed at some time in the last 12 months. (3) 66% of the vocational graduates were employed at some time in their field of training, whereas 45% of those currently employed are now working in that field (national sample is 25%). Twenty-five percent of the employed vocational graduates are in the Trades and 75% are in Business, with females twice as likely to be currently employed in their field of training. Also, 54% of those currently employed began work in their field of training (26% for national sample). (4) The most significant determiners of current wages were found to be duration on job, sex, and relatedness of occupation to the graduate's high school training. Compared with the national average for all adult workers ($4.03), the D.C. vocational graduates earn an average hourly wage of $ 3.94. Welding is the highest paid Trades program ($5.33 average hourly wage) and secretarial the highest paid Business program ($4.13). Male vocational graduates earn more than female ($4.28 vs. $3.69). (5) Academic graduates do not earn significantly higher wages than vocational graduates when compared by year of graduation, with both earning the same hourly wages without postsecondary education; but vocational graduates who attended a postsecondary education program earn less than academic graduates who have attended. All postsecondary drop-outs earn significantly higher wages than postsecondary graduates. (6) About 90% of the vocational graduates are satisfied with their current jobs, while 60% would take the same job again and would also recommend that job to others. More vocational graduates are satisfied with their jobs than academic graduates, and females are more satisfied than males. (7) 10.8% of vocational graduates are currently unemployed, with unemployed vocational graduates twice as likely to be seeking employment than unemployed academic graduates. Unemployed vocational males have not been seeking work as long as have unemployed vocational females (15 vs. 30 weeks on the average). One third of the previously employed vocational graduates left the last job to return to school, and 80% would repeat the vocational program if they had it to do again. (8) Vocational graduates are more satisfied with the high school instruction, facilities and counseling than are academic graduates, with twice as many vocational than academic graduates finding their high school education good preparation for work and 50% of the vocational graduates feeling their high school education good preparation for further education; but 60% rated the help they got in selecting a postsecondary school as only fair or poor. Females were more satisfied with school than males. (9) Vocational graduates are twice as likely as academic graduates to have received help from high school personnel in finding their first job after graduation, with the counselors the most likely school employees to assist in finding those jobs. (10) About half of the vocational graduates and 3/4 of academic graduates go on to postsecondary education, but half of those vocational graduates do not enroll immediately after high school. Nearly a third of these do not complete the postsecondary program after enrolling. (11) Unemployed vocational graduates scored significantly lower than employed graduates on all items dealing with psychological well-being; however, in general, of all vocational graduates: (a) 93% liked the people in their community, (b) 97% believe they will someday be able to buy a house they will enjoy, (c) 90% expect their standard of living to improve in the next few years, (d) 83% think their personal happiness will improve in three years, (e) 86% believe job opportunities will be better in three years, (f) 36% feel the public schools are doing an adequate job, while the majority do not think schools are responsive to the needs of the students and 44% think their children would get a good education in the local schools. In summary, urban vocational graduates look positively on school, work and community; but the authors admit they have not surveyed drop-outs who might be more negative.

On the basis of the study's results, it was recommended that the D.C. Public School System actively consider (1) a follow-up study of high school drop-outs, (2) periodic in-depth studies to supplement information obtained from annual follow-ups, and (3) implementation of a follow-up information system such as the one detailed in the study, which had been designed, approved, and pilot-tested including hardware, software, and a cost estimate.

Critique
by
Arthur M. Cohen

> This study used telephone interviews and quesionnaires addressed to vocational school graduates to assess their post-high school experiences. The telephone interview follow-up provided useful corroboration and amplification of the mailed survey. Pre-testing the instrument and controlling for differences in scholastic ability also evidence methodological care. The findings are based in time and different results would be obtained because of changed market conditions if the survey were run again. However, the procedure can be effectively used to provide data useful in program evaluation.

Kaufman, Jacob J., et al. The Role of the Secondary Schools in the Preparation of Youth for Employment. University Park, Pa.: Institute for Research on Human Resources, Pennsylvania State University, February 1967.

This two-year study (1964-66) financed by the USOE had two objectives: (1) to study and assess state and federally aided or reimbursed vocational secondary school programs and the extent to which they are meeting the needs of the students and the communities; (2) to compare the vocational and technical education curriculum with other high school curricula whose graduates also enter the labor market. To achieve the first objective, an independent team of 11 experts evaluated vocational programs at 25 different high schools located in 9 communities on the basis of course offerings, organization, physical facilities, and direction of learning. The attainment of the second objective required a study of the graduates of these schools during the preceding five years. An evaluation of the the graduates' job skills was made on the basis of interviews with 658 employers and with 90 union officials and of appraisals by 2,826 school officials and supervisors. Interviews were also conducted with randomly selected graduates from the vocational-technical (2,111), college preparatory (1,047) and general curriculum (2,023) programs.

The on-site evaluation of the vocational program indicated that these programs are generally of high quality, but their enrollments are low; many of the students who enter the job market upon graduation had not selected a vocational curriculum in high school. In comparison to programs in larger communities, those in small communities are stronger with respect to extent of penetration, administration, use of advisory committees and instructional program. Vocational programs were generally weak in not having (1) an administrative structure which could exercise a viable role in making top level policy or (2) strong guidance programs for vocational counseling, placement or follow-up. Vocational students did not appear to be short-changed in academic coursework, and a full-service vocational program offering diverse curricula was found to be the most effective. Interviews with graduates, employers and union officials regarding employment experiences and job attitudes of vocational graduates showed little difference in preparation between vocational and general curriculum graduates, although academic graduates were clearly less prepared for the job market. Differences between starting pay rates were minimal, and average increases in compensation per unit time in the first job were generally comparable. Also all three groups experienced a similar level of job satisfaction. No measure used in this study showed if Black graduates of vocational programs had a more favorable attitude toward school or if they benefited from such training more than their White counterparts. However, Black vocational graduates apparently benefited more than non-vocationally trained Black high school graduates.

Based on these findings, the following recommendations are made:
(1) Secondary education should be re-oriented to provide offerings of an occupational nature for those students who expect to enter the labor market after high school graduation. Such re-orientation should include training for occupational clusters rather than the traditional single job skill.
(2) Special features of vocational education should be utilized to design programs for those students who cannot benefit from the current content of the three curricula. Thus the needs of low-ability or low-educational-interest students should be met with nontraditional instructional methods, flexible

scheduling and program structure. (3) A greater effort should be made to enroll Blacks of average and above-average ability in vocational programs. (4) A wider range of program options should be provided for women. (5) New methods of instruction should be devised for occupationally oriented students. (6) Advisory committees made up of employers and union officials should be used to keep programs up-to-date on the labor market situation and needs. (7) The weak guidance programs should be strengthened to provide more vocational counseling, placement and follow-up of graduates.

Critique
by
Lewis Solmon

One purpose of the study was to evaluate vocational secondary school programs in regard to the extent to which they are meeting the needs of the students and communities. It might have been useful to spend somewhat more time explicating the needs of these constituencies before examining the programs.

Despite significant success, vocational programs were deemed weaker than necessary primarily due to weak administration and poor counseling. However, more emphasis should have been placed on defining goals of vocational education: specific job training, a phasing into the world of work, assuring the community adequate supplies of certain types of labor, a baby sitting service for those unable to attend post secondary education but too young to work.

What are the differences between "general" and "vocational" curricula? Are the latter too narrow in stressing mechanical skills despite the fact that language, calculating and other cognitive aptitudes are necessary in all vocations?

How can we evaluate success of voational programs? If the graduate gets a job? If the job pays relatively well? If the job enables (requires) use of skills learned in the program? If the graduate is satisfied with his job? If the worker possesses skills enabling job mobility?

Against what yardstick should these outcomes be evaluated? Should graduates of vocational education be compared to high school dropouts or to all high school graduates? Do designers of vocational education programs assume they get the inferior high school students or just that their equally-able students have different interests?

Answers to questions raised in the above two paragraphs are required in order to design and evaluate vocational education and coop education programs. They are particularly required when the programs view as constituents, not only the students, but the employers as well.

Most of the recommendations deriving from the study follow from the answers to the questions raised above. However, advocacy of channeling Blacks into vocational eduction is a dangerous precedent. The advocates could be accused of using vocational education to keep qualified Blacks out of the more education intensive professions.

The last two points involve better information and are very important. Good counseling is useless without labor market information. Guidance can eliminate old stereotypes and enable students to get the best learning for themselves.

This study did appear to be well-formulated. Sample sizes appear to be sufficiently large, and the evaluation is focussed on the schools studied rather than on the whole system of vocational education. The conclusions are based on the evidence without attempts to pat the system on the back.

It is too bad that the study is ten years old; and even worse, the system does not seem to have changed since then.

Molnar, Daniel E., Pesut, Robert N., and Mihalka, Joseph A. Cost Effectiveness of Selected Cooperative Vocational Education Programs As Compared with Vocational Programs Without a Cooperative Component, Final Report. Columbus, Ohio: BATTELLE, Columbus Laboratories, 1973. (ED 080 671)

This cost-effectiveness study compares two types of selected vocational education programs: one with a cooperative component and one without. The study's purposes are as follows: (1) to identify and describe the various types of cooperative and non-cooperative vocational programs currently being conducted in secondary schools; (2) to obtain cost comparisons between vocational programs using the cooperative method and regular vocational programs; (3) to assess the effectiveness of various types of vocational programs; (4) to obtain data on the type of students in various vocational programs and on their performance; (5) to determine the present possibilities of making successive in-depth analyses.

Data were collected, analyzed and interpreted from 12 school districts in Minnesota, North Carolina and Ohio. A set of instruments, which are included, were developed to collect historical information on cost, effectiveness, program descriptions and student characteristics. A field study of the program and a limited number of interviews with employees were also conducted.

Based on the cost data collected, two cost measures were chosen for analysis purposes: annual cost per student and annual cost per student hour. The overall conclusion is that there is no obvious difference in the cost of providing either cooperative vocational education programs or those without a cooperative component.

The effectiveness comparisons were based on follow-up information provided by the schools on graduates of the vocational programs and on a survey of the graduates' employers (90). From the data provided by the schools, no obvious difference was found between graduates of coop and non-coop programs. The effect of the occupation itself and the labor market conditions are probably more important than either the vocational schooling or the method used in providing vocational training. However, conclusions based on the employer survey indicate that employers tend to favor coop graduates. Furthermore, the process of measuring effectiveness through a survey of employers results in a more clear-cut differential than the school data on salary, length of job search and employment.

The identification and description of the various types of coop and non-coop vocational programs revealed little difference between the two programs in the following areas: program's age, class size, use of advisory committees, prerequisite and admission criteria, although criteria for coop programs were somewhat more stringent.

Detailed information on types of students enrolled in the two types of vocational programs reveals several patterns. On the average, coop programs had more disadvantaged students than non-coop programs in the junior year, while proportions in the senior year were not substantially different; however, the proportion of graduates who were non-white was greater for coop programs than for non-coop programs. Substantially more graduates of coop programs were female, while more graduates of non-coop programs were male. The authors attribute these differences to the occupations included in the sample of coop and non-coop programs.

The study has demonstrated that it is feasible to obtain and analyze information on secondary-level vocational programs in the cost-effectiveness context. Several recommendations for further research are made: (1) an in-depth study of the two types of vocational programs should be made and directed at the question of the efficacy of work experience as an element of the learning experience; (2) the study should be expanded to include an in-depth survey of employers, employees, labor market conditions. The authors believe the present study could serve as a model for this suggested in-depth study.

Critique
by
Lewis Solmon

The cost measures used appear to be based on the narrowest definition of costs--the direct outlays by the schools. If so, the equal cost provisions are dubious under certain circumstances. For instance, it seems possible that programs with a coop education component could get away with less investment in capital goods (e.g., machinery for training) if students could avail themselves of equipment in the cooperating firm. If this is not the case, new legislation might consider building in incentives for firms to allow their equipment to be used for training, perhaps by allowing firms accelerated depreciation on such equipment. Of course, I am certain that firms would argue that they incur costs, along with benefits, from participation in coop education.

Secondly, no mention is made of foregone earnings of students. Is it not the case that coop students earn some money while working? If so, their costs are less than full-time non-coop vocational education students. Also, are there not costs involved with organizing coop education programs? Even if these costs are covered by grants, society pays for them.

In contrast to the Hu *et al*. study (1969), this report makes the proper comparison regarding income benefits, namely, between graduates of coop vocational education and non-coop vocational education. The conclusion that nonschool effects are more important than the method of providing vocational training is consistent with research on related issues (Coleman, Jenks, Astin). However, it may be that the dichotomy between coop and non-coop hides impacts of program quality within a type. That is, some coop and some non-coop might be more effective than others.

The surveys of employers which concludes that coop students are favored is somewhat difficult to interpret. It seems logical that if everything else were the same, those with coop experience would be preferred. However, this is not inconsistent with equal earnings if we note that coop programs generally had more blacks and women and disadvantaged, all disfavored in the job market.

The study correctly concludes that data can be collected for cost effectiveness studies of vocational education. Of course care must be taken regarding the types of information sought. The data for the best analyses are the most difficult to collect. Their suggestion for new data collection are interesting, but the costs of collecting the data must be considered.

Wilson, James W. "Survey of Cooperative Education, 1969." Journal of Cooperative Education, November 1969, 5-15.

For the first annual survey of cooperative education, a questionnaire was sent to the 143 institutions listed in the 1969 Directory of Cooperative Education and in the February, 1969 list of the National Commission for Cooperative Education. Although only 85 institutions (70 baccalaureate colleges and 15 junior and community colleges) responded, this represents 66.9% of the potential total (127) since 16 institutions were removed from the population because their programs were so new that they could not meaningfully respond, because their programs were sufficiently unique to make response difficult, or because they did not have a program at all. The questionnaire asked for information relating to coop programs in general and to coordinators in particular.

Findings are as follows: (1) most coop programs at both kinds of institutions were begun since 1961; (2) the number of students actively engaged in coop programs in 1968-69 ranged from four to 9,370 (median=132) at baccalaureate colleges and from nine to 725 (median=147) at two-year colleges; (3) 55% of the programs reporting are operated by one professional person; (4) although coordinators at four-year colleges travel 1200 miles more than coordinators at two-year colleges (2500 vs. 1300) and have travel budgets approximately three times as high, total coop budgets are almost identical at the two kinds of institutions ($19,750 at four-year colleges and $19,500 at two-year colleges); (5) almost three-quarters of all programs are centralized operations with the program administrator reporting to an academic dean or vice president; (6) coop participation is optional in all curricula at 68% of the institutions, optional in some curricula and mandatory in others at 16.5%, and mandatory in all curricula at 15.2% of the colleges; (7) in those colleges with optional coop programs, program admission is entirely the choice of the student at 41% of the colleges--at the other 59%, students must apply to the coop department and are accepted or rejected according to established criteria; (8) students are not required to sign an employment contract at 76% of the institutions--they must sign a contract with the school at 15% of the colleges, with both the school and the employer at 8%, and with the employer alone at one percent of the colleges; (9) although 26.6% of the institutions give academic credit for coop work experience, only 17.7% consider this credit to fulfill degree requirements--7.6% give credit not for the work itself but for a paper or project based on the work, and 66% give no credit for the work or for projects based on the work; (10) 86% of the institutions formally register their students for coop periods and 36% charge a coop fee; the average charge per coop term in 1969 was $19.00; (11) over half of the institutions give recognition to the coop student by noting coop participation on the student's permanent record and/or diploma (46%) or by issuing a coop certificate (7%); (12) although 64% encourage students to take courses while on their coop work assignments, 91% do not encourage them to work during on-campus terms.

Most coordinators at both kinds of institution have faculty rank, are judged for promotion by the same criteria as teaching faculty, are eligible for tenure, are voting members of teaching faculties, are eligible for membership on the faculty senate, are eligible for sabbatical leaves, and did some teaching during 1968-69. Compared to coordinators of two-year college programs, coordinators at four-year colleges carry heavier student loads. Coordinators in the two kinds of institutions are very similar in level of educational preparation: approximately 30% hold bachelor's degrees, 60% hold master's degrees, and 10% hold doctorates. Typical coordinator salaries for 1968-69 were equivalent to those paid to instructors and assistant professors.

Wilson, James W. "Survey of Cooperative Education, 1970." Journal of Cooperative Education, November 1970, 31-44.

The 200 institutions receiving questionnaires for the 1970 survey of cooperative education were those listed in the 1970 Directory of Cooperative Education and in the June, 1970, list of coop programs published by the National Commission for Cooperative Education. A total of 110 usable questionnaires were returned; this represents 55.8% of the potential total (187) since 13 institutions were removed from the population because their programs were just now getting under way, because their programs were sufficiently unique to make response difficult, or because they had abandoned their programs altogether. The sample included 89 baccalaureate institutions and 21 associate institutions; 55% of the four-year colleges and 86% of the two-year colleges were publicly supported.

Most of the programs were established within the last ten years and much of the data reflects the newness of these programs. For instance, 62% of the programs in four-year institutions and 55% of those in two-year institutions were operated by one person in 1969-70. Those programs operated by more than one person tend to be older programs enrolling larger numbers of students. Also, the average number of active coop student in four-year colleges has decreased from 132 in 1969 to 105 in 1970, and the average number in two-year colleges has decreased from 147 to 82. This decrease in the average number of coop students per program is more likely the result of an increased number of new small programs than the result of actual decreases in enrollment. Another reflection of program newness is the stability of coordinator salaries in 1970 as compared to 1969; the fact that they are now lower than the average salaries of assistant professors is probably the result of a greater number of new coordinators commanding lower salaries because of fewer years of experience.

Despite their newness, coop budgets are approximately $5,000 higher this year than last. Printing budgets at both educational levels averaged $500 in 1970,and travel budgets at both kinds of institutions averaged $1,000 despite the fact that typical coordinators at four-year colleges traveled approximately 1,000 miles more in 1970 than those at two-year colleges (2,500 miles vs. 1,500 miles).

As reported in 1969, most programs are organized as centralized departments reporting to an academic dean or vice president; 60% of the baccalaureate programs and 38% of the associate programs are so organized. The second most prevalent organizational pattern--a decentralized program with coordinators attached to an academic department--was reported by 18% of the four-year college programs and 23% of the two-year college programs. Nineteen percent of the two-year college programs are organized as centralized departments reporting to some campus officer other than an academic dean or vice-president.

Compared to 1969, this year's survey found (1) a decrease in the percentage of programs making coop mandatory for students in all curricula (from 15.2% to 9.5%) and a substantial increase in the percentage of institutions with optional programs making program admission entirely the choice of the student (from 41% to 54.5%); (2) a six percent increase in the percentage of colleges requiring coop students to sign employment contracts (from 24% to 30%)--as in 1969, most of these contracts must be signed only with the school; (3) a substantial increase in the percentage granting academic credit for coop work (from 26.6% to 43%) and a corresponding increase in the percentage of those granting credit who are giving credit that fulfills degree requirements; (4) a six percent decrease in the percentage formally registering their students for coop terms (from 86% to 90%) and an increase of $11.00 in the average charge per coop term (from $19.00 to $30.00); and (5) a decrease in the percentage of institutions encouraging course work during work periods (from 64% to about 50%) and a decrease in the percentage not encouraging work during study periods (from 91% to 83%).

Additional findings indicate that 75% of the coop directors felt that faculty were either highly enthusiastic or at least accepting and supportive of the coop program; that only 40% of the optional programs and 50% of the mandatory programs had full employment in 1970 (the remaining colleges experienced four to six percent unemployment this year); that most one-person programs were supported as part of an academic budget, whereas most multi-person programs had their own budgets; and that coordinators estimated that 40% of the coop graduates at both institutional levels go on to a full-time position with a coop employer and that 25% of the two-year college coop graduates continue their education.

Data relating to the on-campus status of coordinators are similar to that presented in the 1969 survey. Furthermore, coordinators at four-year colleges continue to carry heavier student loads than their two-year counterparts. However, data pertaining to the coordinator's levels of educational preparation are quite different this year than last. In 1969, two- and four-year college coordinators were found to hold similar degrees; in 1970, on the other hand, 45% of the coordinators in four-year colleges held bachelor's degrees, 45% held master's degrees, and 10% held doctorates, whereas, in two-year colleges, these percentages were 30%, 62%, and 5% respectively, with approximately 3% holding less than baccalaureate degrees. Typical coordinator salaries in 1970 were in the $11,000 to $13,000 range, the same as reported in 1969.

Wilson, James W. "Survey of Cooperative Education." Journal of Cooperative Education, November 1971, 39-51.

Questionnaires for the 1970-71 survey of cooperative education were mailed to the 292 institutions "suspected" of having coop programs. Since 15 institutions indicated they did not have coop programs, the population was set at 277; this is a 48% increase over the population of one year ago and is 93% greater than the 1969 population. Within the sample, 60.5% were four-year colleges and 30.5% were two-year colleges. In 1970, two-year colleges comprised 19.1% of the sample and in 1969 only 17.6%. Sixty-seven percent of the responding institutions were publicly supported, and the average responding college was located in a city with a population between 190,000 and 250,000.

Results indicated that: (1) over 70% of the programs were established within the last 10 years, and 25% were begun during the past two years; (2) over half of all coop programs were operated by one person in 1970-71; (3) among single-person programs, 28% were directed by one full-time professional person, 50% were run by one part-time person, and the remainder were run by two or more devoting part-time to the coop program; (4) responsibility for coop education was shared with teaching loads by 41% of the coordinators, with academic administration by 31%, and with placement or student personnel administration by 17%; (5) the average number of students actively engaged in four-year college coop programs operated by one person has decreased from 60 in 1969-70 to 40 in 1970-71; although part of this decrease can be attributed to program newness, an actual decline was found in some of the older programs; (6) four-year college multi-person program enrollments have increased from an average of 310 last year to an average of 375 in 1970-71; (7) although two-year single-person program enrollments have remained stable since last year, two-year multi-person program enrollments have declined from 236 to 200--this decline is wholly attributable to program newness; (8) one-person programs at both institutional levels tend to be supported as part of the academic budget, whereas about half of the multi-person programs have their own budgets; (9) almost half of those programs still in the planning stages have their own budgets, which probably reflects the fact that most of these programs are supported by federal grants which allocate funds directly to newly created coop departments; (10) overall budgets have decreased (from 26,500 last year to 22,750 this year)--this is also attributable to the large number of programs receiving federal grants, which typically are for $20,000 each; (11) travel budgets have slightly increased since last year, but printing costs for brochures, pamphlets, etc., are down from an average of $500 in 1969-70 to $300 this year; (12) approximately 50% of all coop programs are centralized operations reporting to an academic dean or vice-president; (13) 70% of the programs offer coop education to students on an optional basis--of these, 47% require students to meet specific criteria for program acceptance and 53% take any student who applies; (14) coop prgorams are mandatory in some curricula and optional in others at 11% of the institutions and mandatory for students in all curricula in which it is offered in 19%; (15) 83% of the institutions formally register their students for coop terms and 40% charge an institutional fee for these terms; (16) the average coop fee for 1970-71 was $25.00 per coop term; (17) 35% of the institutions grant credit for coop terms--of these 87% require a report for such credit; (18) an additional 48% grant credit which is not applicable to student graduation requirements;

(19) 60% give some kind of special recognition to their coop students; (20) although 53% encourage course work during coop work periods, only 19% encourage students to work during study periods; (21) fewer than 25% place students on non-paid work assignments; (22) about 37% of the institutions require the student to sign a contract with employers, the school, or both; (23) 74% of the institutions do not require coop students to carry any kind of medical, hospital, or accident insurance and do not carry it for them; (24) in 1970-71, only one-third could find employment for their their coop students; another third could not place up to nine percent of their students and the remaining third could not place at least 10% of their students; (24) most coop jobs are located in the metropolitan area surrounding the institution, but placements are found in distant states and overseas; (26) coordinators estimate that 33% of their coop graduates pursue full-time employment with a coop employer.

Consistent with the findings of the surveys of 1969 and 1970, most coordinators are accorded essentially the same professional status and privileges granted to teaching faculty. Thirteen percent of the coordinators hold doctorate degrees, 46% hold masters degrees, 27% hold bachelors degrees, and 14% hold less than baccalaureate degrees. Although four-year college coop coordinators still have heavier student loads than two-year college coop coordinators, this gap appears to be narrowing. Twenty-nine percent of the coordinators averaged more than 50 employer visits this year; this is in contrast to 10% last year and probably indicates the state of the economy and the resulting difficulty of obtaining and keeping coop assignments. The fact that the average coordinator's salary is the same as last year is attributed to the number of programs emerging in geographical regions with generally lower salary levels.

Wilson, James W. "Survey of Cooperative Education, 1972." Journal of Cooperative Education, November 1972, 9-25.

The questionnaire for the fourth annual survey of cooperative education was sent to the 317 colleges and universities known to have operating coop programs or believed to be in the process of developing programs. Usable responses were received from 243 institutions (76.7% of those contacted). The sample included 167 senior institutions and 76 two-year colleges; 163 of the sample colleges were public and 80 were private. A comparison of the sample with the population of all 317 coop programs indicated that the sample closely approximated the total population with regard to both educational level and kind of institutional support. Approximately 90% of the respondents had programs in operation; of these, 75% were begun since 1961 and almost 20% were begun in 1971-72.

In an attempt to help institutions interested in developing coop programs of their own, this year's survey paid particular attention to the methods in which coop programs are operated. Data indicated that: (1) career development was the primary objective at over 80% of the institutions--personal and cultural growth was the second most noted primary objective; (2) coop programs tend to be optional to the student, either on a freely elective or selective basis; however, programs were mandatory in 13.1% of the senior institutions and in 20% of the two-year colleges; (3) although the majority (77.3%) of the senior college programs involved alternating semesters or quarters of full-time work and full-time study, approximately 50% of the two-year college programs included part-time work and part-time study on a half-day basis during the same term; (4) coop experience tends to begin during the freshman year at two-year colleges and during the sophomore year at senior colleges; (5) coop programs tend to be organized as centralized departments under the academic dean or vice-president; (6) approximately 95% of the two-year college programs attempt to place most of their coop students in paid work stations, as opposed to volunteer positions; and (7) approximately 90% of the coop programs seek discipline-related coop experience for their students.

Policies regarding the number of terms involved in coop education vary widely, as do those regarding the awarding of credit. Some institutions award no credit for coop participation, some award credit that does not fulfill degree requirements, and others award credit not for the work experience itself but for a paper or other project based upon that experience. Analysis of annual survey data since 1969 indicated a substantial trend toward the practice of awarding credit that is counted toward the degree. It is postulated that this trend is a result of the rapid growth of the coop concept and the fact that the newer programs are willing to commit themselves to the educational significance of coop work experience. In this regard, it was found that (1) two-year colleges award credit that fulfills degree requirements about 30% more often than do senior institutions; (2) senior colleges tend to charge the responsibility of awarding credit to the academic departments, whereas two-year colleges tend to give this responsibility to the coop department itself; and (3) those institutions awarding credit tend to charge tuition at the regular rate for coop terms.

Wilson, James W. "Concerns and Issues of Cooperative Education. Survey of Cooperative Education, 1973." Journal of Cooperative Education, November 1973, 1-6.

In 1973, questionnaires were mailed to 674 directors of known and suspected coop programs. As of this writing, six weeks after the questionnaires were mailed, only 51% of them were completed and returned. As a result, the present report focuses upon responses to open-ended questions appended to the questionnaires themselves; these questions concerned problems of program operation and issues facing coop education as a whole. Data relating to program characteristics will continue to be collected and will be summarized in the next issue of the Journal of Cooperative Education. Contrary to this statement, the data were never reported.

As of September 1, 1973, a total of 10 directors (15% of the 674 sampled) had responded to these open-ended questions; 24 responded to the questions for those planning or beginning to implement programs and 77 responded to the questions for those with fully operational programs. Because of the low response rate, the results are presented as illustrative of concerns and judgments of persons in the field, not necessarily as statistically representative of the total coop education community.

Ninety-nine directors cited 204 problems encountered this past year. These were classified into nine categories. Perhaps expectedly, the most frequent problem faced by those planning and beginning to implement programs was that of obtaining institutional support (particularly from the faculty), whereas the most pressing problem for those with fully operational programs was that of developing appropriate work assignments.

Problems of program funding and of recruiting or working with students were experienced by a relatively large number of both groups. Most directors reporting a problem with financial support indicated that they were anxiously awaiting word of a grant from the Federal government. Problems with students related to the difficulty of recruiting students into optional programs and of making students understand and accept the notion that coop education is primarily a learning experience, not just a financial boon for them. Problems relating to program structure (calendar arrangements and optional vs. mandatory programs) and to departmental staffing were noted with moderate frequency by both groups and concern for the evaluation of student experiences was reported least often by both groups.

Those planning or beginning to implement programs indicated that administrative support was the most important factor in support of the coop program. Inadequate financial support was viewed as the greatest deterring factor. Other inhibitors cited were faculty resistance, pressures of other institutional problems, the provincial character of the students, and concern over control of the programs.

According to the directors of fully operational programs, the inadequacy of appropriate jobs is the most critical issue to be faced by coop education as a whole in the next year or two. Other critical issues include academic credit, program funding, and corruption of the historical concept of coop education. Evaluation of programs and outcomes were mentioned by only two directors as a critical issue.

In evaluating students, most directors (70%) rely on employer assessments of student work and demeanor in concert with other data (such as a paper or special project based on the work, observations by the coordinator at the work site, and conferences between student and coordinator). A very few program directors reported that they have begun or are about to begin a process of establishing specific learning objectives with the students and then evaluating students in terms of those objectives.

In evaluating the program itself, directors usually judged success according to the following criteria: success in placing students in career-related work assignments, student satisfaction, academic and professional growth of students, faculty and administrative support, the percentage of graduates working in their major fields, and employer satisfaction.

These data indicate that directors of operational programs are deeply concerned about having enough suitable jobs for their students: job development was their number one problem during the past year; the issue facing coop education over the next few years cited most often was the inadequate number of appropriate jobs available; and the criterion of excellence most often reported was success in placing students in career-related jobs. The data also indicate that the respondents have relatively little concern about program outcomes and their evaluation: this was the last in order of problems experienced; it was last in the order of perceived critical issues facing coop education; and it was suggested by only a quarter of the respondents as a criterion of program success. Because the issue of accountability will become more and more important as degree credit for coop education is adopted as a policy in an increasing number of institutions, directors must give more attention to the evaluation of student learning resulting from coop work experience.

Brown, Sylvia J. and Wilson, James. "Survey of Cooperative Education, 1974." Journal of Cooperative Education, May 1975, 1-8.

The questionnaire for the sixth annual survey of cooperative education was sent to 832 known and suspected coop programs. Responses were received from 771 institutions, 71% of which were public and 29% of which were private. Approximately 51% of the 771 responding colleges had fully operational programs; another 26% had fledgling programs, and the remaining 23% were conducting feasibility studies, planning a program, or about to implement a program. The sample was composed of 56% four-year and 44% two-year colleges; this is a significant departure from previous surveys which found two-year colleges to have a much lower percentage of of the total programs. This indicates the increasingly important role that coop programs are playing in the education of junior and community college students.

Many of the findings of this survey are consistent with those of previous surveys. Career development is still the primary objective of approximately 80% of the coop programs. Senior college programs still tend to alternate periods of full-time work and full-time study, whereas two-year college programs tend to include part-time work and part-time study in the same time period. The majority of all programs continue to provide coop jobs that are related to the student's field of study and that are paid employment. Two-year colleges still give the responsibility of awarding credit to the coop department, while four-year colleges charge the academic departments with this responsibility. In addition, data on the length of the coop term, the number of coop terms, and the time of the first coop experience have not changed greatly in recent years.

Several trends can be noted, however. The 1972 survey found "personal and cultural growth" to be the second most frequent primary program objective; this is still the case in four-year institutions, but in two-year colleges this objective now shares second place with "more effective use of institutional resources." Other trends indicate the increased flexibility of coop programs. These trends include: (1) an increase in the number of programs following a schedule of full-time study and part-time work; (2) a decrease in the number of mandatory programs (to 11%) and an increase in the number of freely-elective programs (to 37%); and (3) an increase in the number of institutions not specifying the particular number of terms required.

Other significant trends indicate the increased academic respectability of coop education. Although a majority of coop programs continue to be administered by a separate and distinct coop department reporting to the academic dean or vice-president, more colleges now report that the program is a function within an academic department, division, school, or college. This is undoubtedly a reflection of the fact that academic credit for coop work experience is becoming a more common practice. Along these same lines, it is noted that: (1) two-year colleges are still more likely than four-year colleges to offer coop credit which counts toward the degree, but the percent of four-year colleges offering such credit has increased from 39.7% in 1972 to 57.8% in 1974; (2) faculty are providing more input into coop programs; (3) most colleges now charge tuition at the regular rate per credit hour for coop terms; and (4) the number of colleges not requiring work experience directly related to the student's major has decreased.

Critique
by
Arthur M. Cohen

The Wilson documents are annual surveys of the scope of coop eduction in America. The procedure employed is a questionnaire sent to all institutions identified as having such programs. Generation of the list has varied over the years from selecting just those institutions listed in the Directory of Cooperative Education to those suspected of having programs. Response rates range from 15 percent to 92 percent of the institutions contacted. The varying response rates and the different questions asked each year make comparability and historical evolution difficult to follow. Nevertheless, the surveys are useful in identifying trends in program emphases, organizational patterns, development cycles, and problems.

EVALUATIVE STUDIES: METHOD AND THEORY

(Section I)

Wilson, James W. "Program Continuation After Federal Funding and Selected Program Variables." Journal of Cooperative Education, May 1975, 33-36.

Title IV-D of the Higher Education Act of 1965, as amended in 1968 and 1972, authorizes the United States Commissioner of Education to make grants to colleges and universities for the administration of cooperative education. "Administration" has been interpreted to include the planning, initiation, strengthening, or expansion of programs. The maximum grant any institution may receive for such administration is $75,000 and no institution is eligible for more than three grants.

Due to a peculiarity of funding, grants awarded in 1970 and 1971 did not count toward the three year limit and institutions receiving grants in these years were, therefore, eligible for five years of Title IV-D funding. By 1974, 74 institutions had received IV-D grants for at least three years; 18 institutions had received three grants, 22 had received four, and 34 had received five. Of the total, 13 were two-year colleges.

In order to determine how well these programs are likely to fare without IV-D support, a questionnaire was sent to program directors at 71 of the 74 institutions. Of the three not contacted, two were consortia in which it was not clear which institutions had received three grants and which had not, and the other was a state office which did not itself direct a program.

Completed questionnaires were returned by 100% of those receiving three grants, 40.9% of those receiving four, and 20% of those receiving five. In all, responses were received from 47 institutions (66.2% of the total sample); nine of the respondents were two-year college program directors.

The overwhelming majority of respondents indicated that they expected their programs to continue without IV-D funds. The fact that three, four, and five grant recipients exhibited similar degrees of optimism about program continuation disproves the contention that a five year grant eligibility is significantly better than three.

Of all the variables considered potentially relevant to director assessments of program continuation, only four correlated significantly with director optimism. These were (1) the number of students placed on coop assignments during the 1974-75 academic year; (2) the amount of support given by the faculty and the president; (3) the percentage of the total coop budget for the current year contributed by the institution; and (4) the anticipated source of program money following the final IV-D grant year. Variables related to specific program characteristics and structure appear to be much less important than institutional commitment in predicting program continuation. The two variables correlating most highly were the anticipated source of future funding and the percentage of financial support contributed by the institution in the past year. The data show that when the grant constituted the smaller percentage of the total coop budget, and when the likelihood of future funding by the institution or by the institution in combination with outside sources was assured, the director expressed more confidence in the program's continuance. Those programs financed entirely by the grants and anticipating no future institutional funding had the most pessimistic assessments of program continuation.

Critique
by
Arthur M. Cohen

This is a survey of program directors and higher returns might have been anticipated with only 71 people to be contacted; a response rate of 90-100 percent is not too much to expect. The findings are suspect because of the low response rate and because the reports are based on program directors' feelings about the probable continuation of their programs if Federal funds were withdrawn--not a reliable assessment because program heads can get replaced.

Barsby, Steve L. Cost-Benefit Analysis and Manpower Programs. Lexington, Mass.: D. C. Heath, 1972.

Barsby believes that the evaluation of manpower programs is a necessary adjunct to their operation. Evaluation of manpower programs from the standpoint of economic efficiency, or cost-benefit analysis, attempts to indicate whether the value of the outputs of a program exceeds the value of the inputs. It can also compare the costs and results of alternative programs and direct investment into the better project. The book essentially reviews studies of the benefits and costs of: (1) vocational education in high schools; (2) vocational education in post-secondary schools; (3) out-of-school manpower programs; and (4) programs with an on-the-job-training (OJT) component.

In most cases, except post-secondary vocational education, resultant ratios exceed one; however, the findings are often limited by methodological problems, noncomparability of results, and the limited number of such studies. The author concludes that cost-benefit analysis's greatest potential lies in internal analysis of programs rather than in straightforward comparisons between different programs.

Four cost-benefit studies of vocational education at the secondary level and two of vocational education at the post-secondary level are examined and and their methodologies adjusted to make their results comparable. Utilizing a time horizon of 30 years and a 5% discount rate, social benefit-cost ratios ranged from 1.5 to 27.1. Each of the studies of vocational education at the secondary level compared vocational education in a vocational-technical school as an alternative to general education. The two studies of vocational education in high schools exceed those for vocational education in post-high school institutions. Probably the largest single factor contributing to the lower returns at the post-secondary level is the high opportunity cost associated with withdrawing participants from the labor force to attend post-secondary schools.

Results from C-B analysis of institutional training programs suggests that institutional training conducted under ARA yielded higher returns than institutional training under either MDTA (Manpower Development and Training Act) or BIA (Bureau of Indian Affairs). Such differences are probably due to (1) the short term nature of classes under ARA and (2) the greater amount of job placement guarantee associated with ARA training.

Evidence from Cost-benefit analysis suggests that OJT conducted BIA yields greater returns than MDTA and NYC (Neighborhood Youth Corps) sponsored OJT. Also, work training offered in the private sector yields greater returns than such training offered in public employment. Such differences are attributed to (1) irreconcilable methodological differences among studies, and (2) greater job guarantees associated with work training in the private sector.

A ranking of various manpower programs is done on the basis of their benefit-costs ratios as follows: (1) Vocational Rehabilitations (9-25); (2) Vocational Education in vocational-technical high schools (10.1); (3) Programs utilizing OJT (5.0); (4) Out-of-school Institutional Retraining (4.7); (5) Post-high-school Vocational Education (1.5-4.2); (6) Job Corps (1.5); (7) Dropout-prevention Program (0.6). But in criticism of existing benefit-cost analyses, the author asserts that such studies do not measure non-wage benefits. He counters that some "unmeasured" benefits of manpower programs, such as decreased crime, improved health, wider options, personal satisfactions or success, are already included in earnings. Furthermore, he believes that three other sources of benefits--decreased property loss from crime, intergeneration effects, and benefits from improved citizenship--

may not be large. Since unmeasured benefits do not vary widely among different programs, inclusion or exclusion of these in the cost-benefit ratios will not greatly affect the program ranking. Even if unmeasured benefits do vary widely among programs, however, their variance among participants within a given program normally will be substantially less because of the greater homogeneity of participants. Thus, cost-benefit analysis is especially useful for internal operation of programs since here even the presence of large and varying unmeasured benefits among programs does not limit the usefulness of benefit-cost ratios for internal management of programs.

Critique
by
Lewis Solmon

The author concludes that cost/benefit analysis' greatest potential lies in internal analysis of programs rather than straightforward comparisons between different programs. However, this seems to be saying that one should simply evaluate a particular program, and if the benefits are greater than the costs, then the program is viable. However, the principle use of cost/benefit analysis must be for selecting particular types of programs since the nation has a budget constraint which precludes it from developing all programs where the benefit/cost ratio is greater than one. That is, even if there are net benefits from a particular program, we cannot automatically advocate its continuance unless it can be shown that the benefits from a particular program exceed those of others, particularly those competing for funds.

The type of analysis described depends crucially for its evaluation of benefits upon the standard to which the program is being compared. For instance, it is assumed that benefits of vocational education at the postsecondary level are to be compared to the benefits of entering the labor force following high school. However, it might be that the proper comparison is between a vocational postsecondary option and an academic postsecondary option. This is particularly the case when there is a mood in the nation for an individual opting for vocational postsecondary training rather than academic since ultimately vocational jobs will be more plentiful than those traditionally entered after academic training. Similarly, comparison of vocational education at the secondary level to general education must consider that one of the benefits of the general high school education is the value of the option to pursue an academic postsecondary path. That is, there should be built into the general education alternative the additional income attainable after receiving a bachelor's degree with this income deflated by some probability measure where the probability is based on the proportion of individuals with general high school education ultimately obtaining the bachelor's degree.

The program used for comparison becomes particularly important if different alternative programs have different probabilities of yielding nonmonetary benefits. For example, many of the benefits falling into the psychological development, political awareness, socialization, and similar categories probably are much more probable for those pursuing traditional education than for those entering the labor force directly after high school.

It should also be emphasized that very little research on the unmeasured non-income benefits of manpower programs has been conducted. There is no evidence on their magnitude, their dollar values, and whether or not there are as many negative nonmeasured benefits as there are positive ones. Also, greater concern for the accrual of these benefits to the individual obtaining the education and to a broader group in society should be considered. Similarly, there is missing a discussion of the break-out of the sources of the expenditures between the individuals obtaining the education and the government or society at large. Costs incurred by employers who provide on-the-job training must also be considered. However, in this case, it is very difficult to determine what specific costs are attributable to the on-the-job training itself.

Borus, Michael E. (Ed.) Evaluating the Impact of Manpower Programs. Lexington, Massachusetts: Lexington Books, 1972.

This book contains the Proceedings of a Conference in 1971 at The Center for Human Resource Research, the Ohio State University. The collected articles outline the methodology, issues, concepts, and procedures for evaluating the impact of manpower programs. According to Borus, the book has two goals: (1) to bring together the techniques which have evolved for dealing with the practical problems involved in manpower program evaluation, and (2) to advance the theoretical foundations for program evaluation. Each of seven sections is summarized below.

Designing an Evaluation System

Barth argues that although past evaluation studies of manpower programs have focused on one program, it is rather cross-program comparisons that are vital to making policy. This is so because (1) they present models of success for emulation in future programs; and (2) they demonstrate the relative trade-offs necessary to allocate the manpower budget between competing programs. He discusses the joint Office for Economic Opportunity, Department of Labor four-program comparison as a model for such evaluation studies. Bryant and Hansen discuss measuring intraprogram differences. To answer the question of which components are most effective, the analysis must include as independent variables the interaction of program participation with specific components of the programs and characteristics of the labor market. Finally, Scanlon, Nay, and Whaley lay in detail the type of information needed to conduct continuous interprogram and intraprogram evaluations.

Choice of Appropriate Control Groups

Hardin argues that the best technique for choosing a control group is to randomly assign the individuals who sought to enter the program into two groups, one to be participants, the other the control group. All other extant methods of control group selection, Hardin states, have differences in characteristics of motivation which would lead the control group to lack comparability with the program participants. Miller, however, is generally skeptical about the use of control groups. He feels too little is known about the causes of various effects of manpower programs and therefore it is difficult to say that matching on a selected number of characteristics establishes control. Stahler finds fault with the random assignment technique. He asks whether manpower services should be denied to some persons solely for evaluative purposes.

Designing the Survey

There are problems inherent in attempting to measure economic variables, in particular, the gains in income and employment. One of the most difficult problems in their collection is in selecting the method to collect data. Argana discusses using unstructured work histories versus chronological questioning. She concludes that the latter is preferred. Sheppard, in discussing questionnaire construction, argues for increased use of measures of attitudes both as independent and dependent variables. He suggests measuring achievement motivation, achievement values, and job interview anxiety.

Measuring the Noneconomic Impacts of Manpower Programs

There are numerous noneconomic impacts of manpower programs which should be assessed. These include: effects upon education, health, crime, community power structure and political institutions, individual and job satisfaction, family life. Also these variables often have economic dimensions. The papers by Kasl, Somers and Stromsdoyer, McDonnel, and Mangum and Robson are devoted to the measurement of these impacts.

Finding the Hard to Locate

The response rate in manpower studies is often low and introduces a high probability of nonresponse bias. Apparently, there is a need to improve the response rates in manpower evaluation studies which rely on sample survey. Bryant and Hansen propose a method for preselecting individuals to be included in evaluation studies which they believe will greatly alleviate the response problem. The papersby Homans and Baines detail interviewing procedures which result good responses. Barnes details the procedures used for the OEO-DOL (Office of Economic Opportunity - Department of Labor) study NORC (National Opinion Research Center) is conducting, to locate the hard to find. Lewis further suggests paying respondents to increase their motivation.

Sources of Economic Data

The papers here discuss the relative merits of some of the basic existent data sources and how access to them may be secured.

Measuring Secondary Labor

Market Effects. To measure the extent that manpower programs achieve their goals requires knowledge not only of the programs of the participants in them, but also on others who might be affected. Rosen seeks to determine if externalities exist in the training process. Hameresh examines the short-run displacement within a firm which is caused by training subsidies. He also examines the effect of better labor market information processes which speed the person-job market.

Thurow believes that there is ranking of workers and the bottom group is unemployed. The size of this group, he argues, is determined by macroeconomic policies set in terms of target unemployment rates. Under these circumstances he finds that for each trainee moved out of the unemployed group and placed in a higher position on the scale, there is an offsetting displacement. He concludes that time constraints, different amounts of natural human resources, the non-marginal nature of manpower programs and irrationality all lead to deviations from perfection in labor market operations.

Critique
by
Lewis Solmon

This book presents a good collection of articles on the methodology of evaluating manpower programs. It will be useful in designing future evaluations of coop education. Many of the points made in other critical reviews have been considered here, e.g.; non-economic benefits, selection of proper comparison groups, need for inter-program analysis. However, this book cannot serve as evidence pro or con coop education, since specific results of program evaluations are not presented. That was not the purpose of the book.

Haggart, Sue A. Program Cost Analysis in Educational Planning. Santa Monica, Calif.: Rand Corp., 1971.

The paper explores the conceptual and methodological basis of cost analysis and develops a planning model for estimating program cost. The model is designed for use in evaluating alternative programs and in pre-implementation planning for future programs. The author believes that the planning cost model with its supporting cost analysis methodology provides a consistent basis for estimating the dollar cost of educational programs. As such the model is purported to be a better planning device than the usual method which simply reports cost per student or per unit of achievement with no indication of what is included in the cost. The author instead suggests that cost-effectiveness of educational programs produces several outputs--the aspects of cost, the measures of effectiveness, and the relationships between cost and effectiveness.

In estimating the program cost to be used in comparing programs, the resources available within a specific district or assets inherited from discontinued programs are not taken into account and a standard price for common resources, such as teachers, is used. The resulting estimated program cost is identified as the comparable replication cost. It is a comparable cost that normalizes the cost of the programs.

In estimating the program cost to be used in deciding whether or not a particular program can be implemented in a specific district, the resources available within the district and district-specific prices for these resources must be determined. The resulting estimated program cost in this case is the incremental cost to the district.

The planning cost model developed here estimates both the comparable replication cost and the incremental cost. The first step, common to estimating either cost is a definition of the program in terms of its objectives, its students, and its resource requirements. These resource requirements are then translated into the type of program cost estimate relevant in the decision to be made.

The model defines a list of cost categories. Those costs of school district operation not affected by the existence of the program are not included in the estimated cost of the program. The author suggests that the cost of most programs can be encompassed within the two broad categories of acquisition cost and operational cost. Acquisition cost (one time cost) includes: design of program; development of materials; program implementation; materials. Operational cost (continuing cost) includes: program direction; evaluation; management support; salaries; transportation. Then, for each item (or input) in each cost category, the cost basis is either per student, per program, per unit, or direct service charge.

The outputs of the model are the resource and cost information about the specific educational program. The descriptors of the program--number of teachers, number of students, etc., are shown in the model along with the cost output. The purpose is to provide, in one place, an estimate of the comparable replication cost and a description of what is being bought. Thus, the model integrates the program description, in terms of resources required, with the process of estimating the program cost (acquisition cost and operational cost).

The application of the model is demonstrated by estimating the comparable replication cost and incremental costs for several different programs. Tables are specifically designed to aid the user in model application.

Critique
by

Lewis Solmon

The intent of this article is commendable; that is, the more detailed the cost analysis of any program, the better the evaluation of it. However, the attempt to differentiate between standardized replication costs and specific incremental costs in a particular district is somewhat artifical. The standardized cost data are not usable in any practical sense. It is necessary when making a decision regarding the cost effectiveness of any particular program or the wisdom of adopting one program rather than another to look at costs specific to the area where the program is being evaluated or considered for adoption. In the standardized case, questions such as the basis for choosing standardized cost figures arise immediately. It seems obvious that if the costs selected are taken from an area where building costs are low but teacher salaries high, the decision to adopt a program where teacher costs dominate will be very different than if the standardized costs are those from an area with low teacher costs and high building costs. This problem is similar to ones that arise in the area of international trade where what is proper and logical in one country with a particular set of resources, is the incorrect product mix in another country with a different set of resources. In other words, the replication costs specific to a particular locale is the important cost estimate in any decision regarding program implementation or evaluation. The standardized comparison is less useful because it is a function of the prices selected.

Similarly, the nature of resources available in a specific district and the sunk costs (or assets inherited from discontinued programs) are crucial factors in the go-no-go decisions in every case. Similarly, the benefits or value of a particular program might vary according to the utility curves (tastes) of the potential consumers of a program in a particular district. When the particular circumstances of a specific district are considered, items such as complementary programs, substitutable programs which already exist, economies of scale local resource availabilities, among other factors, will crucially affect evaluation and adoption decisions. In making decisions regarding specific programs in the context of varying local prices and varying local tastes, there cannot be a national policy.

In addition, certain costs cannot be allocated to specific programs without great difficulty. For example, if a local school board oversees all educational programs, what principles underlie the allocation of costs of the board among specific programs? It seems that this model does not provide guidelines for allocating overhead costs to specific programs.

In sum, it seems to me that this model does not contribute much more than the urging that costs be explicated in great detail. It is surely the case that more detailed cost estimates are more useful than less detailed cost estimates. However, in deciding upon the wisdom of particular programs and particular locales, the cost situation in the specific locality are the only factors of relevance.

Hu, Teh-weh; Lee, Mau Lin; Stromsdorfer, Ernst W.; Kaufman, Jacob J.
A Cost-Effectiveness Study of Vocational Education. University Park, Pa.: The Pennsylvania State University, Institute for Research on Human Resources, 1969. (ED 029 093)

This study was designed (1) to develop an appropriate methodology for conducting a study of vocational education's cost-effectiveness so that federal and state agencies can begin to conduct cost-effectiveness studies in education, and (2) to obtain data on the extent to which such a study can actually be performed.

In developing an appropriate methodology, the study reviewed many theoretical issues. Initially cost-benefit analysis is defined as an economic methodology which concerns itself with the optimum allocation of resources. To evaluate the alternative courses of action in governmental educational program, the theory (or justification) of public expenditures for education includes such things as externalities, equity, efficiency in production and the contribution of investment in human capital to economic stability and growth. In deciding the optimum amount of public expenditures for vocational-technical and academic education, optimum is the point where the additional benefits from an additional dollar spent on these two educational programs would be equal. Costs and benefits accruing to an individual and those accruing to the community and to the society are differentiated and defined. Benefits include increased earning, transmission of knowledge and culture, creation of new knowledge. As a component in the production, distribution, and consumption of private goods and services, education is not strictly comparable with private goods and services, and is not perfectly substitutable for other public and private goods. Thus, the calculus of choice among competing alternatives does not apply completely to education. The authors state that at the present state of the art, cost-effectiveness appears to be a more appropriate evaluation technique for educational problems than benefit-cost analysis.

Three different criteria for choosing among competing projects are then reviewed: the net present value rule,the internal rate of return, and the benefit-cost ratio. Under "ideal conditions" all three rules yield the same result; however, the real work imposes constraints which can invalidate any of these criteria. Thus the constraints involving a given investment situation should be examined, and the rule most relevant to that situation applied.

The data collection portion of the study was designed to collect cost data from school systems in three cities. The money cost data are structured on the basis described in Financial Accounting for Local and State School Systems: Handbook II, since the three cities tended to be guided by this manual when reporting costs. Earnings and employment data were used as proximate measures of benefits. The benefit data are based on labor market histories reported by mail questionnaires from a sample of high (vocational and non-vocational) school graduates from the classes of June and January 1959 and 1960. The histories covered a six-year period following graduation and the total sample size was 1,255. Information was attained on seven sets of independent variables: curriculum, sex, race, marital status, city of graduation, IQ measures and father's education. Questionnaires are appended.

The report concludes that, under the conditions specified in the study, additional public funds should be spent on the vocational-technical curricula rather than on the nonvocational-technical senior high school curricula. As the report is constituted, there is no specific information on how much more should be measured in terms of earning; the return to investment in vocational-technical education was shown to be considerably greater than the return to investment in the alternative curricula. The study notes the following implications: (1) efforts should be made to determine the degree to which various educational programs are being efficiently operated, independent of the question as to the optimum allocation of resources between alternative educational programs. Thus the production and cost functions of various educational programs should be analyzed; (2) further studies are required to evaluate alternative programs of vocational education.

Critique
by
Lewis Solmon

As is typical in these types of studies, this one begins by paying homage to the large variety of benefits that potentially derive from formal education. However, the empirical work is based on only one type of benefit--namely, earnings--since this is the only one easily measured. Other non-monetary private (individual) benefits and the social (public) outcomes of education are difficult both to identify and to evaluate. This omission is particularly troublesome here since we are not simply comparing education and other governmentally subsidized goods, but rather we are making relative evaluations of different types of schooling which, by definition, differ in their promise of monetary and other rewards.

Whether "cost-effectiveness" (presumed to mean efficient spending) or "cost benefit" techniques are selected, the benefits side cannot be ignored.

Data Analysis On the cost side, the first problem seems to be in determining which costs from a state school system are for vocational education and which are for non-vocational training. I would bet that the division is arbitrary. What about the English teacher who teaches students from both programs? How are plant costs allocated? Are not vocational education programs more capital intensive (mechanics shops, etc)? As in the post-secondary sector, it is unfair to compare costs of programs such as laboratory sciences, manual arts, and English.

Secondly, what about earnings foregone by students who attend school rather than work? Surely these are many students 16 years or older who remain in school and hence give up salaries. This problem becomes particularly troublesome when coop education is considered since vocational students acquiring work experience probably get some pay to defer their opportunity costs.

From a total cost perspective, direct costs incurred by the school (indirectly paid by taxpayers) and foregone earnings incurred by students who earn less when in school than if they drop out must be considered. However, if we assume that direct costs are higher in vocational education programs we might balance this with evidence that vocational education (coop education) students forego less earnings, since either they have more opportunities to earn while they learn or would have earned less than the academic students who historically have been considered more able. If we accept these assumptions, the total investment costs for students in each program might be equal.

Hence, differences in cost effectiveness turn on evidence of benefits to graduates of each program. As noted, benefits are restricted to those related to the world of work (earnings and employment) although other benefits probably derive in different amounts to and from students' vocational education and non-vocational education programs.

More importantly, it is unfair to compare earning histories in the six years after high school of graduates of vocational education and non-vocational education programs. Vocational education graduates were trained in the expectation that they would enter the labor force immediately after high school. A major fraction of non-vocational education graduates are expected to continue their education. Hence, most vocational education graduates would have earnings but most others will be in postsecondary training at least part time after high school. Earnings comparisons between these groups are loaded with biases. If the comparison is between vocational education and non-vocational education graduates who are working (fully employed), the contrast is still unfair since one extra benefit of the non-vocational education graduate is the option he possesses to obtain more schooling later if he so desires.

Moreover, unless some heroic assumptions are made about the proportion of non-vocational education graduates who will go directly to work, we cannot evaluate all non-vocational education programs by looking at only the graduates who go directly to work. This proportion will be influenced in part by labor market conditions which completely confound the relationships which must be studied.

Also, human capital economists argue that on-the-job training (OJT) is an important method of acquiring additional human capital after the end of formal schooling. One incurs OJT by taking a job at lower pay (i.e., by foregoing earnings) in exchange for training. The acquisition of OJT is particularly widespread in the early years of work and varies by job type and type of in-school training. It is argued that life-time earnings paths are not achieved (i.e. relative salaries over the long run cannot be observed) until about eight or ten years after leaving school. Before that earnings obtainable from prior schooling are reduced by different propensities of graduates to invest in OJT during the first six years of work.

In summary, costs must include foregone earnings and be sensitive to problems of allocating direct costs among programs. Benefits should consider those that are difficult to measure. Earnings differentials must be viewed in the context that non-vocational education graduates might be now or in the future better able to avail themselves of postsecondary training, and graduates from different programs invest differentially in OJT. Analysts must make sure they are comparing vocational education graduates to a valid alternative group before advocating more money for vocational education.

Lucas, Aaron. Process Model for the Development of a Cooperative Education Program. State University System of Florida, Tallahassee. Sponsored by the Bureau of Higher Education (DHES/OE), Washington, D.C., 1973. (ED 085 037)

This paper suggests a process model for planning and developing a college cooperative education program. The first year is dedicated to pre-planning and the feasibility study of the program to be planned and implemented in the second year. Beyond detailed advice on each step in the process, it includes sample forms, procedure outlines, and a flow-chart depiction of the model. Once interest in coop education has been generated, information on coop must be disseminated among key campus people followed by informal visits to hear their reactions to the idea. Future employers are also important sources of input at this early stage. A coop committee is then formed of administration, faculty, student body, and business community members; but care must be taken to insure a representative spectrum of all educational philosophies on the committee. The committee's functions include: studying the coop education prospects at the college and in the community; developing a workable coop model and writing future policies; promoting the proposed plan; locating resources for financing, information, personnel and physical facilities; reviewing programs at other schools through visits to institutions and employers with ongoing programs with specific questions in mind. Visiting schools with similar characteristics to one's own is also important, especially to study those problems not yet solved in their programs. Workshops and conferences should be attended, and seminars can be set up to inform people on campus. A brief but well-planned and evaluated survey of campus and business needs and attitudes is also in order, during or after which a variety of alternative types of coop programs must be evaluated keeping in mind the college's size and interests, geographic location, type and number of disciplines, educational, philosophical, and financial resources. Several organizational types are outlined and discussed, but common to all are at least one full-time director and a secretary. Funding sources are discussed, but it is stressed that a coop program is especially non-self-supporting in its formative stages and that a program not funded fully will not flourish. Coop is not an immediate cure for the financial ills of its students; however, in the long run it will effectively reduce both problems if well-supported. Credit granting, scheduling needs, what departments can initially participate and their needs, as well as long-term goals of the program are other considerations of the pre-planning stages. All alternative programs must be evaluated along with the input, with pluses and minuses of each alternative stated clearly and documented before presentation to the committee which will determine the best program for the school.

The second year is spent in implementing the program. A recommended operating budget of $30,000 to $40,000 includes staff, travel to conferences and recruitment, general office needs, faculty visits, handbooks and brochures. Staff qualifications should be realistic considering the lack of experienced people in a rapidly expanding field. An M.A. is recommended for the director, who must move in a "degree conscious" community. He/she should be familiar with the business and academic worlds and highly concerned with students. The secretary is important as the initial contact with the program for most students. Too many other staff members can be a burden, although not enough staff can hinder the program as well. Staff new to coop, in general, need to be educated to the idea and its concerns through conferences (CEA/CED) and visits to other programs before being left with the whole job. The program policies and procedures must be developed with all goals and concerns in mind. Student recruitment is a continuing process which can include publicity and counseling at high schools and on campus, as well as public service announcements. Personal visits to employers are necessary to establish student positions, and presentation of the program must primarily include the advantages to the employer. Business organizations and alumni members are sources of future coop employers. Student interviews must be extensive first for selection and then for placement. These can be supplemented by guidance office tests and counselors. The director must evaluate beyond stipulated job requirements, looking at the student's needs as well. Finally, job interviews are in order between student and employer, with copies of correspondence going into the student's coop file. A final student briefing is suggested before jobs begin, and after the program has just begun.

Critique
by
Arthur M. Cohen

An interesting model for developing a coop program is presented complete with step by step procedures. Of note are the recommendations and designs for involving campus personnel, employers, and students at every stage of the planning process. The model assumes that a program will be launched. Missing, therefore, are fail-safe points, procedures for determining when the plan should be abandoned if evidence of lack of interest is uncovered.

Prest, A.R. and Turvey, R. "Cost-Benefit Analysis: A Survey." The Economic Journal, December 1965, 75, 683-735.

The article is essentially a literature survey treatment of cost-benefit analysis and includes discussions of: (1) cost-benefit analysis in general; (2) general principles of cost-benefit analysis; and (3) specific applications of the technique to water-supply, education, and other projects.

Cost-benefit analysis is defined as a practical way to assess the desirability of projects which demand both a long range view to the future and a wide view which allows for effects on many persons or regions including externalities. Such analysis aims at maximizing the present value of all benefits less that of all costs, subject to specified constraints.

An enumeration of costs and benefits of alternative projects involves several problems including: (1) definition of the project; (2) externalities; (3) secondary benefits. The valuation of costs and benefits (the relevant prices) also involves several methodological issues. For example, market imperfections exist and departures from Pareto-optimum situations arise when monopolistic elements or other imperfections in goods or factor-markets are such as to twist relative outputs away from those which would prevail under competitive conditions. Here decisions based on valuations of costs and benefits at market prices may not be appropriate. In public decision making, then, failure to correct for these distortions is likely to lead to misallocations of investment projects. There are two possible ways of making the necessary accounting adjustments: a correction can be made to the actual level of costs or benefits.

The literature on choice of interest rate for public investment decisions is reviewed. The social time preference rate is espoused by some writers because they believe that it attaches more weight to the future than private time preference and that it is the former which is relevant for determining the allocation of society's current resources between consumption and investment. The issues of social opportunity cost and adjustment for uncertainty are also treated.

An evaluation of alternative projects involves several relevant constraints: (1) legal constraints; (2) distributional constraints; (3) physical constraints; and (4) budgetary constraints. The authors believe that there are four decision rules which give four equivalent results in evaluating projects: (1) selecting all projects in which the present value of benefits exceeds the present value of all costs; (2) selecting all projects where the ratio of the present value of benefits to the present value of costs exceeds unity; (3) selecting all projects in which the constant annuity with the same present value as benefits exceed the constant annuity (of the same duration) with the same present value of costs; or (4) selecting all projects in which the internal rate of return exceeds the chosen rate of discount.

A cost-benefit analysis of flood control reveals that the major benefits are the losses averted. Generally, the mathematical expectation of annual damage are estimated and then such sums as the maximum annual amounts people would be willing to pay for flood control measures are considered. Other benefits include avoidance of death by drowning and avoidance of temporary costs. Costs for flood control works and for repair and maintenance must also be included.

Cost-benefit analysis of education involves several problems: (1) the danger of using a current cross-section analysis to predict a future time series; (2) the question whether incomes reflect marginal productivity sufficiently well to be used as measures of social returns; (3) the fact that income depends on other variables besides age and education.

In conclusion, there are several general problems with using cost-benefit analysis: (1) when there are many diverse types of benefits from a project, it is difficult to list them all and to avoid double counting; the evaluation of benefits include problems of the measurability of utility, the validity of simplifying assumptions, and the comparability of utilities between persons; (2) one frequently needs to go beyond measurement of benefits on the basis of market prices and make allowances for imperfections, externalities, etc.; (3) an appropriate discount rate must be chosen; and (4) it is impossible to allow in any systematic fashion, for uncertainty which is obviously an important portion of the cost-benefit calculation.

Critique
by
Lewis Solmon

This review is a competent and complete survey of the economic literature of cost-benefit analysis. The only caution that can be suggested is that the discussion assumes that most of the benefits of new programs can be specified in dollar terms. This is clearly not the case in many instances. Increases in psychological and sociological benefits must be considered even if they cannot be reduced to dollar values.

Similarly, the cost of a project is usually measured in terms of dollars spent. However, a more general approach might be to compare the benefits of a particular program with the benefits potentially accruing to alternative programs obtainable by the same dollar expenditures. That is, cost-benefit analysis might be more appropriately considered benefit-benefit analysis where the benefits of one project are compared with the benefits of possible alternative projects. However, this study is highly recommended as being relevant in deciding upon the framework for construction of new cost-benefit analyses of cooperative education programs.

Rodes, Harold P. "The After Effects of Cooperative Education." Journal of Cooperative Education, May 1968, 4, 13-23.

General Motors Institute (GMI) is an accredited undergraduate college sponsored by GM. Engineering students at GMI alternate every six weeks throughout the first four years of the cooperative education program between on-campus study and related work assignments in various GM units; during the fifth year, most undertake a major engineering project. The purpose of this study was to assess the effects of cooperative education. GMI surveyed graduates of the classes of 1966, 1961, 1956, and 1951, and plant supervisors of 55 different units of GM. 763 graduates and 179 supervisors completed the questionnaire; less than one-fourth of the responding supervisors were graduates of cooperative programs.

In general, the respondents favored cooperative education. Most of the graduates and supervisors indicated that cooperative programs provide a much better transition to industry than does a non-cooperative program, and that (1) cooperative program graduates are superior in terms of their knowledge of actual plant operations and engineering practices when they undertake full-time employment, (2) cooperative program graduates have an edge in terms of advancement in the organization (level and salary), and (3) the additional year required of cooperative students is no disadvantage. Furthermore, most supervisors indicated that cooperative program graduates are better prepared to assume positions of responsiblity in industry.

The graduates were equally divided (24% yes and 24% no) in their opinions of whether the familiarity and student image that develops in the organization during the cooperative experience is an advantage or a disadvantage; supervisors, however, tended to believe that it was an advantage. Supervisors were equally divided (28% yes and 28% no) in their opinions of whether or not they would select a cooperative program if they had it to do over again; however, most of the graduates claimed they would select a five-year cooperative program in such a situation.

The majority of respondents indicated that coop and non-coop graduates are similar in their development of competence on the job, their ability to supervise the work of others, their agreement with and support of organizational goals and objectives, and their interest and participation in church, civic, and cultural activities.

Critique
by
Arthur M. Cohen

Integration of school and work experiences and the transition from school to job are arranged most expeditiously when both school and workplace are under the same corporate tent. Alternate periods of school and work with each supporting the other seem useful. The benefits are greatest in assisting an orderly transition--a point of major concern. This study is based on data from a single-purpose college; hence, it lacks generalizability since so few institutions are in that role. The procedure was a straightforward survey of graduates with a tabulation of their responses.

Stromsdorfer, Ernst W. Review and Synthesis of Cost-Effectiveness Studies of Vocational and Technical Education. ERIC Clearinghouse on Vocational and Technical Education, August 1972. (ED 066 554)

This study attempts a synthesis of the various approaches to evaluating vocational education and related manpower training programs on the basis of economic criteria. Initially, a rationale for the use of economic criteria, especially benefit-cost analysis, is presented. Then, a discussion of the methodological issues in the estimation of costs and benefits follows. Using the preceding discussion as a theory base, a review and synthesis of extant benefit-cost studies of vocational and manpower training is conducted. Finally, on the basis of such studies general conclusions are set forth by the author.

Benefit-cost analysis is treated here as synonymous with economic analysis of any program. As such, it concerns itself with the optimum allocation of resources. Under the benefit-cost framework both marginal and average costs and benefits must be estimated. The average benefit-cost ratio indicates the absolute level of performance of a social program. The marginal benefit-cost ratio indicates the relative level of performance of a social program. An accurate evaluation of a social program requires an accurate specification of objectives, a specification of desired outputs, appropriate indices to measure these outputs, and an appropriate model which specifies the manner in which program inputs create the desired program outputs. Also, benefits and costs of the program must be evaluated together in an efficiency sense since "high benefits" do not necessarily imply a worthwhile program. The appropriate investment decision rule is to invest in the program with the highest net present capital value. Three different investment criteria are mentioned: the net present value rule, the internal rate of return, and the benefit-cost ratio. Under "ideal conditions" all three rules yield the same result. However, the real world imposes constraints which can invalidate any of these criteria.

The methodological section treats the definition of costs and benefits. All costs then are opportunity costs. Benefits are the opposite of costs and represent opportunities gained as a result of undertaking a particular project. Several measurement and conceptual problems confront the decision maker of educational investment in human capital. These include: (1) earnings maximization versus utility maximization; (2) complementarity in production and consumption; (3) joint costs of production, consumption and investment; (4) non-market production and consumption; (5) impact of education on values and preferences; (6) risk; (7) complementarity, substitutability, and inseparability of human skills; (8) external effects; (9) income redistribution effects; (10) the influences of unemployment on the determination of costs and benefits; and (11) the problem of the control group.

The review of extant studies on the benefits and costs of vocational education and the author's conclusions are presented separately below for Secondary Vocational Education, Post Secondary Vocational Education and Junior Colleges, and Manpower Training.

The marginal rate of return to vocational-technical education (compared to the curricula of the comprehensive high school) only falls below the lower bound of 5 percent for the social rate of return to capital for New York City. For example, in the studies reviewed here, the marginal rate of return to vocational-technical education is 31.8 percent in Detroit, 8.2 percent in Philadelphia, and 17.9 percent in Worchester, Massachusetts. Although apparently secondary vocational-technical graduates as a group do better (earn more) than academic or comprehensive high school graduates, not all occupational specialties in vocational-technical education pay off equally well.

Based on this evidence, the author concludes that it seems clear that the secondary vocational curriculum yields greater labor market benefits relative to the comprehensive curriculum. However, this judgement is qualified by the fact that the objective functions of the two groups are not the same and that the populations served are not identical.

The studies cited appear to indicate that post-secondary vocational education is a losing proposition for students who have graduated from a high school vocational curriculum. Generally, it was found that marginal rate of return for post-secondary vocational-technical education is 6.8 percent with respect to secondary academic education. However, Somers, et al. (1971) shows that a person who is a graduate of a secondary vocational-technical curriculum suffers a net economic loss if he undertakes two additional years of post-secondary vocational-technical education. Thus, Stromsdorfer concludes that on economic efficiency grounds, society should "discourage" this educational sequence, unless or until additional empirical evidence shows a more favorable rate of return.

The junior college, however, does appear to yield substantial benefits over secondary vocational education. However, the objective functions of the two different populations may not be the same. Somers (1971) provides evidence on the economic returns to junior college training. The marginal rate of return to junior college relative to post-secondary vocational-technical education is 20 percent. Thus, it may be economically more rational for society to invest in two years of junior college than for it to invest in two years of post-secondary vocational-technical education.

The MDTA manpower training program appears to yield high rates of return. However, it is not clear whether these high returns are due to retraining, job placement services that accompany the training, or the "sheepskin effect" as a selective device.

The Main Study (1968) is judged to give an accurate assessment of the net returns to institutional manpower training, since its methodology involves the use of an appropriate control group for a nationwide sample, and adjustments were made for major sociodemographic, motivational, and economic variables. If the benefits to such training are assumed to last only ten years, then the marginal rate of return is 15.9 percent. If the benefits are assumed to last the remaining working life of the trainee (35 years), then the marginal rate of return is 20.2 percent.

Stromsdorfer concludes the study with an evaluation of cost-benefit analysis as now used as a decision-making tool in vocational education. Cost-benefit analysis shows that a program pays or does not pay. However, the calculated rate of return does not tell how much to expand or contract a program since nonlinear total costs or benefit functions are usually not used. Average cost functions are not estimated so one does not know whether one is operating in a range of increasing or decreasing returns or costs or what the optimal scale of operation may be. Also, if one expands or contracts a program on the basis of the benefit-cost analysis, it is not clear what one gives up, or what will replace the program if the level of funding is reduced. Also, benefit-cost studies to date have not evaluated different production techniques for the programs. Finally, most of the studies have not even calculated marginal costs and benefits so they exhibit a fundamental inability to aid in making choices among alternatives.

Despite the shortcomings of extant cost-benefit studies, Stromsdorfer concludes that this economic criterion provides a rational and systematic analysis of social programs, as it provides a methodology for clear-cut specifications of program objectives and outputs. However, the author cautions that benefit-cost analysis is not yet at the stage where such analysis can be widely adopted and automically integrated into all decision-making at the federal or state education level, much less at the school district level.

Critique
by
Lewis Solmon

This study seems to be complete in certain dimensions while totally ignoring others. It is a useful resource as far as it goes. One problem not addressed is the selection of the comparison group when determining benefits. For example, there is a statement that benefits to secondary vocational curriculum are greater than labor market benefits of the comprehensive curriculum in high school. That is, the comparison made is between vocational graduates and graduates of the comprehensive high school curriculum who enter the labor force. However, the high school graduate from the comprehensive curriculum going directly to the labor force is probably not typical of the high school graduate from the comprehensive curriculum in general. The reason for this is that most of the latter group go on to college after high school. Probably the correct comparison would be to look at the labor market experiences of groups of high school graduates, some from a vocational program and some from a comprehensive program at a time in the future when all of them are in the labor force. This would involve measuring earnings perhaps ten or more years beyond high school to allow those high school graduates who proceeded through college to enter the labor force. The real comparison should be whether a vocational high school training plus a certain number of years in the labor force yield equivalent benefits to high school graduation, college graduation, and fewer years in the labor force.

As in several of the studies reviewed here, this one ignores an important benefit accruing to individuals graduating from the comprehensive high school curriculum, namely, the value of the option of going to college and obtaining the additional benefits in terms of higher salaries accruable to those with postsecondary training.

In a similar vein, it is not fair to evaluate postsecondary vocational training by looking at those with secondary training in the vocational area who proceed into postsecondary vocational training experiences with experiences of those in traditional higher education, and also to look at individuals in postsecondary vocational training who did not take the vocational track in high school. We are stacking the deck if we look at individuals who enter programs which are redundant given their earlier training, rather than looking at people who enter similar programs but obtain new types of skills therein.

The author feels that cost/benefit analysis does not give us guidance regarding expansion or contraction of programs since we cannot estimate the potential benefits or costs implied in the expansion or reduction programs. However, cost/benefit analysis does tell us that if a program is clearly superior in terms of its cost/benefit ratio, additional money should be directed to that program rather than to programs with lower benefit/cost ratios at the present time.

In addition, the assumption is that the economic benefits should provide the basis for expansion/contraction decisions. Many non-economists would argue that the existence and value of non-economic benefits should be incorporated into analyses of the value of particular vocational programs. Once again, it should be noted that these non-economic benefits are even more difficult to measure than the economic ones, but they might be the crucial determining factor in the wisdom of expanding programs.

Wood, W. D. and Campbell, H. F. Cost-Benefit Analysis and the Economics of Investment in Human Resources. An Annotated Bibliography. Kingston, Ontario: Queen's University, 1970. (ED 045 848)

This annotated bibliography presents 389 citations of periodical articles, monographs, and books and represents a survey of the literature as related to the theory and application of cost-benefit analysis. Listings are arranged alphabetically within these eight sections: (1) human capital; (2) theory and application of cost-benefit analysis; (3) theoretical problems in measuring benefits and costs; (4) investment criteria and the social discount rate; (5) schooling; (6) training, retraining and mobility; (7) health; and (8) poverty and social welfare.

Individual entries include author, title, source information, "headings" of the document which provide a brief indication of content, and a brief, noncritical annotation. The bibliography is intended to serve as an analytical reference for both the academic scholar and the policy-maker in this area.

Section 1. Human Capital

Cost-benefit analysis is a method of investment appraisal. It can be applied to any expenditure which is capital-forming, and, consequently, is expected to yield a future return. When cost-benefit analysis is applied to expenditures which purchase some kind of treatment for human beings, it is assumed here that these expenditures represent human capital formulation. This section of the bibliography then deals with the theory and measurement of human capital.

Represented in this section are treatments of investment in human capital which fall, basically, into two sections--the contribution of such investment to increases in national output or growth and the effect of human capital investment on increases in earnings or disposable income.

Some representative works from section one are included in the following brief resume:

Bowman discusses the contribution of education to national growth in "Schultz, Denison and the Contribution of 'Eds' to National Income Growth." Arrow, "The Economic Implications of Learning by Doing" introduces the hypothesis that technical change in general can be ascribed to experience. The presence of learning means that an act of investment benefits future investors, but this benefit is not paid for by the market. This externality causes the amount of investment in the competitive model to fall short of the socially optimal level.

"Classical" works by Becker, Schultz, and Mincer deal with the theory of human capital and the returns to investment in nonreproducible capital. Related to private investment in human capital is a concept of human resources accounting (Flamholtz) which treats the returns from or value of the human capital component.

Section 2. Theory and Application of Cost-Benefit Analysis.

This section covers the theory of cost-benefit analysis relative to government projects such as water resource development (Bain), defense management (Alchian), and employment service (U.S. Department of Labor).

Some of the methodological issues covered include shadow pricing (Brookings Institution) and public investment criteria (Marglin). Limitations of cost-benefit analysis and program budgeting as decision making tools are discussed in articles by Hines, McKean.

Section 3. Theoretical Problems in Measuring Benefits and Costs.

This section includes works that treat problems encountered by the analyst in computing the benefits and costs of alternative projects. Buchanan and Stubbebine formulate a mathematical expression of a precise definition of externality which can be applied to technical economies of production and consumption. Stockfish adds to the "externalities" discussion by presenting the dilemma of imperfect knowledge in economic planning. Specific externalities in education are treated in the work by Weisbrod. Dunn presents what he assumes is the problem of bias in benefit-cost analysis, the understatement of costs.

Section 4. Investment Criteria and Social Discount Rate.

Here the investment rules, for example, Net Present Values versus Internal Rate of Return, are discussed (Flemming and Feldstein). Arrow deals with the imperfections of the private capital market. Baumol and Harberger attempt to present the calculus of the appropriate social discount rate.

Section 5. Schooling.

Most of the material here deals with private and social returns to post-secondary education. Becker reviews the reasons for what he terms underinvestment in college education. That is, his argument is based on "externalities." Becker and Chiswich discuss the effects of schooling on the distribution of earnings. Correa introduces a methodology for making a choice between investment in general versus vocational education.

Section 6. Training, Retraining, and Mobility.

This section reviews the specific material on evaluation of MDTA (Bockmura) and other socially sponsored retraining programs (Bateman, Hardin, Borus). Mobility is treated here as an investment in human capital. Stigler discusses the effects of information on job search and dispersion of wage rates.

Section 7. Health.

The attainment of good health is described as investment in human capital. Klarmen's book on the Economies of Health generally covers factors influencing the demand for and supply of physician and hospital services. Mushkin and Weisbrod discuss the lifetime health expenditures on the 1960 Work Force.

Section 8. Poverty and Social Welfare.

Gordon provides an overview of the subject with a discussion of the economic issues involved in welfare programs. Finally, Levine provides an illustrative example of a cost-benefit analysis of a social welfare program.

Critique
by
Lewis Solmon

It is very difficult to provide a critical review of an annotated bibliography. We might have hoped that the bibliography would have included some works by people who are not economists; however, the works included are very representative of the economic writings on cost/benefit analysis.

The primary reservation with the kinds of studies noted is the general exclusion of studies of benefits of programs by individuals other than economists. The collection reviewed stressed the economic or dollar benefits and overlooked much of what is valued by non-economists: benefits falling into the psychological development, political awareness, socialization and similar categories.

Hardin, Einar. "Benefit-Cost Analyses of Occupational Training Programs: A Comparison of Recent Studies" in Cost Benefit Analysis of Manpower Policies. G. G. Somers and W. D. Woods, eds., Kingston, Ontario: Queen's University, 1969. (ED 039 334)

This paper compares concepts, methods, and findings in benefit-cost studies of occupational retraining programs. All studies covered in this work focus on occupationally oriented institutional training of unemployed or underemployed adult workers. Furthermore, Hardin's analysis gives primary attention to those studies which result in complete benefit-cost ratios.

The studies used three points of view in their benefit-cost analysis of occupational training: society, the trainee, and the government.

Page defines the economic benefits for society as the sum of the growth in trainee earnings and the decline in trainee transfer payments which occur after the course and are attributable to it. The economic costs of society include: rental of private instructional facilities, operating costs of instruction in public facilities, and the subsistence allowances received by trainees in addition to regular unemployment benefits.

Cain and Stromsdorfer define the social benefits as the increase in trainee earnings resulting from training. The costs of training consist of the sum of trainee earnings foregone during the class, the direct instructional costs, and the increase in transfer payments to trainees during the class.

Borus defines the social benefits as the aggregate increase in earnings in society, including an allowance for multiplier effects, which results from training. The costs of training consist of transportation costs and output lost by society in other activities because instructional and administrative resources are transferred into training (foregone trainee earnings are not included). Hardin and Borus define the social benefits from training as the increase in trainee earnings occurring after the course and in result of it. The costs of training consist of the earnings foregone and expenses incurred by trainees and instructional and administrative costs. A common idea in these concepts appears to be that a person's earnings measure his contribution to production and that the impact of training upon national product can, therefore, be inferred from the impact of training upon earnings.

Cain and Stromsdorfer define the private benefits as the effect of training on the after-tax earnings of trainees, plus the earnings imputed for the time the trainees are voluntarily out of the labor force, less the reduction in transfer payments to the trainees. The private cost of training is defined analogously. Borus defines the private benefits as the gain in after-tax earnings, less the reduction in social payments. The cost of training consists of the loss in after-tax earnings, minus the increase in social payments during the class, plus trainee expenses.

Hardin and Borus define private benefits and costs in terms of changes in disposable income as a result of training. Disposable income is calculated as gross earnings, less federal income taxes, and employee contributions to social security, plus transfer payments, and less trainee expenses for training.

Hardin suggests that another important private benefit is the effect of training on voluntary leisure. Further he believes that such effect should be shown separately from the impact on disposable income.

Borus defines the benefits of training to the government as the sum of the increase in aggregate tax collections and decline in social payments occurring after training and as a result of it. Hardin and Borus define the benefits and costs in terms of the impact on the funds of the government.

In reviewing the methodology of extant cost-benefit studies of training, Hardin notes that the variability in such studies in the use of comparison groups affects the comparability of the estimates of training effects which are offered by the various studies.

The relation between economic benefits and costs is not necessarily the same for all kinds of courses, occupations, and labor markets. It is not even necessarily the same for all kinds of trainees. Thus, estimates of the economic benefits and costs may be particularly valuable if they are allowed to vary with course, occupation, labor market, and personal characteristics. Information about the experiences of trainees and non-trainees for a period of time after the end of the course is clearly required. This period should be defined alike for trainees and non-trainees belonging to a single course. It should be long enough to permit permanent effects to become visible. Extant studies should be reviewed with respect to the sampling of courses and persons, the quality of the data used, and the methods of statistical analysis employed.

The author concludes that the sampling methods in these studies of retraining, with few exceptions are "not beyond reproach." The principle of random sampling is seldom used in selecting either training courses or trainees. He recommends the use of random sampling in spite of the attendant probable rise in the cost of data collection. One source of bias in some studies is the low response rate of mailed questionnaires. The quality of much of the salary data, obtained from point of time estimates and subsequently adjusted to an annual basis, is to be questioned. Two basic statistical approaches are generally used for measurement of the effects of the training: cross-tabulations in which training status is a basis of classification and multivariate regression analysis in which training status is one of the independent variables. The two methods, however, have some problems. First, the problem of unequal disturbance variance exists. Second, when two or more independent variables are analyzed, there is a problem of interdependence in the causation of the dependent variables. Third, both have limitations on the dependent variable. Hardin concludes that the use of non-linear estimation methods and simultaneous equations approaches for estimating the impact of training should be explored.

In reviewing the results of cost-benefit studies, the following conclusions were arrived at: (1) whether the government ever recovers the funds spent on retraining is an open question, especially in long courses; (2) there is, in general, an adequate economic incentive for individuals to enroll when training is of short duration; and (3) differences in concepts and methods limit the comparability of published estimates of the social and economic benefits and costs of retraining courses. However, it appears that retraining is a socially profitable undertaking. Finally, length of training appears to exert a strong influence on the profitability of training. From a purely economic point of view, there should be decreased stress in government policy on long training.

Critique
by
Lewis Solmon

This analysis of recent studies of cost/benefit analysis in manpower policies seems rather complete. The author is aware of a number of economic concepts which are usually ignored when non-economists evaluate educational programs. In particular, the concept of including foregone earnings in costs is crucially important and recognized in this study. However, the measurement of foregone earnings must be done very carefully, with particular attention to the comparison group. That is, does one consider the opportunity costs of the typical individual in society with the same amount of education and training as that possessed by the person in the program before he undergoes the training to be provided, or do we consider the foregone earnings by referring to the typical wage of an individual of the same age and personal characteristics in society?

Both the individual and the society generally benefit from retraining programs in ways beyond those measured by dollar increments. For example, it has been argued by some that the dissatisfaction caused by those involuntarily underemployed is disruptive to society and reduces productivity. Hence, we might want to add to the private and social benefits explicated, the benefits of a more content labor force deriving from individuals who are working up to their potential. In addition, individuals who are able to earn higher after-tax incomes are better able to invest both time and money in their children so the next generation will be more educated and more socially responsible.

Since costs and benefits accruing to society are considered, one might want to evaluate the costs incurred by the government in terms of alternative benefits foregone by spending money on the retraining programs rather than by spending equal sums on different noneducational programs such as new highways, new museums, or new defense weapons.

Since costs and benefits to society are being considered in addition to those to the individual, the wisdom of government expenditure on educational programs are considered. It is recognized that, if most of the benefits accrue to those receiving the training, then the bulk of the expenditures or costs should be incurred by those receiving the training. Many other studies ignore this important point that government expenditure is justified only to the extent that social benefits exist above and beyond those benefits accruing to the individual. In summary, this study seems to have considered most of the economic concepts which should underly cost/benefit evaluations and which are usually ignored.

FEASIBILITY STUDIES

(Section II)

Davidson, S. H., and Shoenhair, Margaret T. Alternate Cooperative Education for Two-Year Quarter System Colleges: Feasibility Research and Program Design. Cupertino, Calif.: Foothill Community College District, 1974.

Research conducted as to the feasibility of establishing Alternate Cooperative Education (ACE) in 11- or 12-week, quarter-system, 2-year colleges, as well as to provide a replicable model for conducting research as to implementing an ACE program, is described. Coop education is defined as an academic program that provides learning for students through real-life experiences with businesses, agencies, and companies in the community. Information about faculty, employers, students, and colleagues at senior institutions is discussed in Part 1 of the report. The findings suggest that support existed for full-time, short-term paid and creditable field learning experiences among all the groups. In Part 2, recommendations of the ACE Task Force and recommendations, based on research findings, for ACE implementation and long-range program development are provided. Part 3 contains information related to coop education in California community colleges, Foothill Community College District, ACE research strategy and activities, a survey of 2-year alternate coop education programs, and a survey of exemplary Ohio and Washington coop education programs, and provides program information and sample forms.

Bennett, Robert L. "Cooperative-Distributive Education: An Alternate Semester Program." Unpublished paper, 1968.(ED 032 039)

This 1968 feasibility study of a coop education plan for students wanting careers in distribution is limited to College of San Mateo and 50 employers in the area. Although other plans have been developed, the most promising allows two students to fill a full-time work station--one student enrolled for the semester, the other working full time. At semester break they exchange positions. Each combines his college education with career advancement. Employer responses showed that 27 thought the alternate-semester plan would be useful to them; six felt they could develop a suitable plan; seven preferred part-time work with continuous school enrollment; 40 agreed with the principle of coop education; ten said they could not accommodate such a program; most liked having both college trainees and fully-covered work stations; none had discriminatory hiring practices. It was also found that the program recruits students for distributive work and leads to other careers; half-time work is acceptable to most businesses, though it confines the student to nearby jobs; the value of full-time work and school varies for each student. Details of the program, including credit assignment, are discussed. Recommendations include a state master plan for coop education; promotion of the alternate-semester program; financial support for counseling, supervision, and work-station development; new models for open-ended terminal college programs; a pilot study of employment patterns in the area's trade and transportation.

Wooldridge, Roy L. Cooperative Education and the Community Colleges in New Jersey. New York: National Commission for Cooperative Education, 1966. (ED 011 453)

This report studies the possibility of making use of coop education in New Jersey and includes a discussion of the concept of coop education and of its role in higher education. Coop education is a work-study plan integrating theoretical knowledge and practical experiences. The student alternates periods of full-time work in an industrial plant, a business, or a government agency with equal periods of full-time college study.

The factors that point to a potentially effective use of this system include New Jersey's industrialized economy, the shortage of well-trained technicians and supporting staffs, the socio-economic characteristics of the population, and the pressing need for effective and economic utilization of taxpayers' funds for education. In 1966, there were at least 125 institutions of higher education offering some type of work-study program. The strength and appeal of these programs are based on the benefits produced for all concerned: students, institutions and community. One of the positive aspects of coop education is its flexibility in method of operation; the calendar and schedule can be designed to fit the needs of the particular local community and of the students to be served. Four calendars for coop education programs are included to provide examples of that flexibility. Recommendations to the State of New Jersey include: (1) Consideration should be given to the utilization of coop education programs in the terminal courses at each county community college. (2) To accomplish this implementation of coop education, a study committee should be organized for each community college. (3) When a coop program is to be established, aid and advice should be sought from qualified experts in the field. (4) Since the success of coop education depends on effective operation of the program, sufficient funds should be allocated to allow proper administration.

PROGRAM DESCRIPTION, EVALUATION AND IMPACT

(Section II)

Abbott, Angelo V. Model Book for the Cooperative Education Program at Santa Fe (Florida) Community College. Gainesville, Fla.: Santa Fe Community College, n.d. (ED 095 954)

This model book was designed with the intention of helping Santa Fe Community College (Gainesville, Fla.) establish one of the outstanding two-year college cooperative education programs in the Southeast. The coop program, which is scheduled to begin operation in September 1974, will be a comprehensive college-wide two-year program leading to the associate degree. It will be directed toward all segments of the student population, including low-income, disadvantaged, dropouts, women, veterans, adults, and the disabled. Primary focus will be placed on the departments of communications, political and social science, humanities, and science; attention will also be given to business (health related), agriculture, and some vocational-technical areas.

Following the program description, materials which could be used by any college in establishing a coop education program are presented. These include: a detailed analysis of the distinctions between work experience and coop education; a discussion of the factors which influence the kind of coop program to be offered; a list of the various activities to be performed by participating groups if the coop program is to be effectively developed and organized; flow charts of the activities relevant to the development, implementation, and evaluation of a coop program; a monthly breakdown of the duties and responsibilities of coop staff; survey instruments to be used in program planning; and outline to be used by persons visiting other colleges operating coop programs, a description of the purpose, composition, and duties of the advisory committee; a summary of the duties and responsibilities of the program director; a list of criteria for student admission; an overview of the various patterns of coop education; sample information for employers considering the use of coop students; guidelines for establishing training stations; a list of types of employers and types of jobs for selected disciplines in coop education; course descriptions and syllabi; guidelines for the development of a job manual; and other materials and forms to be used in the coop education program.

Baker, John Michael. "A Descriptive Study of Co-op/Non Co-op Attitudes Towards the Concomitant Segments of the World of Work." Unpublished paper, University of Houston, n.d.

Since 1959, the University of Houston has operated a voluntary coop education program for students in several major fields of academic study. This research was conducted to ascertain the differences, if any, between the attitudes of coop and non-coop students toward the ideal work situation and toward their employers, job, and fellow workers. Data were collected from the survey responses of 97 coop and 62 non-coop students from the colleges of Arts and Sciences, Engineering, and Technology who were employed during the summer of 1973. The non-coop students had held summer jobs coordinated with their college work. The groups were proportional by major, with the coop group having a slightly larger number of upper class engineering students. Both groups were surveyed near the end of their summer work experiences. Results indicate that the two groups held similar attitudes toward the ideal work situation, but that coop students held more positive attitudes toward their employers, supervisors, and co-workers; coop students also exhibited more job satisfaction.

Brockmann, L. O. Cooperative Work Experience Education - A Study in Success: Twenty-Six to Forty Years Later. Fullerton, Calif.: California State University, 1972. (ED 079 555)

This study was undertaken to provide an analysis of the reactions of students toward a coop work experience program 26 to 40 years later. Major emphasis was placed on topics such as vocational choice, getting and holding a job, human relations, citizenship education, related instruction, education beyond high school, jobs held since graduation, armed services participation, and income range. Data from 423 respondents (approximately 75%) revealed that: (1) The greatest value of the program was in human relations, especially employer-employee relations and the development of personality and poise, (2) In assisting the participants make a vocational choice, the program ranged from somewhat to extremely helpful in 73.7 to 92.3 percent of the situations, (3) Employment stability was average or better, with approximately 60% remaining in the same field for which they had been trained, (4) In the area of getting and holding a job, the program was somewhat to extremely helpful in 64.8 to 94.3 percent of the situations, and (5) The salaries earned by the former students were modest, with 10.9% earning over $20,000 per year. A sample survey instrument is appended.

Brown, Sylvia J. "The Awarding of Academic Credit for Off-Campus Work Experience." Manuscript prepared for Seminar in Student Personnel Work, Northeastern University, 1975.

This paper seeks to briefly describe the tremendous growth of off-campus work experience as an educational strategy, to describe the various types of off-campus experiences available to undergraduate students today, and to discuss and explore the various systems used to award academic credit for the work experience. It also discusses the issue of who awards the academic credit: a member of the academic faculty; the off-campus employer-supervisor; the student personnel worker responsible for finding the work placements (often called a coordinator); or a combination of the efforts of all three of the above. In addition, this paper analyzes these current methods of evaluating off-campus work experience for academic credit and determines which method is the most educationally valid.

Brown concludes that what must be demonstrated in all instances where credit is awarded for off-campus work experience is that learning has occurred as a result of participation in that work experience. That is, credit is awarded for a learning experience and not for completion of a work assignment. Referring to Dr. James Wilson's suggestion of measuring the attainment of specified learning objectives, the author notes that a learning contract could be established which would include "a statement of the goals to be achieved, a work plan for achieving them and a plan for evaluating the outcome." Furthermore, the person awarding the credit need not be a faculty member. For instance, if one of the student's objectives for the work experience is "to learn how to type a research report with equations," a student personnel worker may be able to evaluate that skill without teaching faculty input.

Bobrow, William. "An Examination of the Federal College Work-Study Program at Monterey Peninsula College." Master's Thesis, The Monterrey Institute of Foreign Studies, 1974. (ED 097 048)

In 1964, Congress enacted the Economic Opportunity Act, Public Law 88-452, to stimulate and promote the part-time employment of students from low-income families who could not attend college without supplementary income. This study examines the Federal Work-Study Program at Monterey Peninsula College (Calif.) to determine the extent to which students and their work supervisors are satisfied with the program. Data were collected from questionnaires distributed to each student and supervisor involved in the program; 100% of the students (124) and 72% of the supervisors (34 of 47) responded. Student responses indicate that: students are gaining and/or improving skills; most students are happy with their job assignments, but would like more opportunity to learn or more training; many students would like more and better supervision and more responsibility; some students would like their money or hours expanded; some students would like to work in a better organized situation; and most students expressed favorable attitudes toward their supervisors and toward the placement office. Responses from the supervisors revealed that the primary skills which they look for in students are good work habits; other skills looked for include technical skills, ability to communicate and work with other people, and language and math skills. In general, supervisors felt that they were providing training and that their student workers had good attitudes and work habits. Some supervisors felt that they should offer better training and counseling and that they needed more information on the students and on the work-study procedures. The major problem cited by supervisors were poor student attendance and punctuality. On the basis of these findings, the author recommends that the placement office at Monterey Peninsula College conduct more follow-up studies and that it provide better and more continuous student counseling, more jobs with training opportunities, and better and more constant contact with supervisors.

Ceely, William D. "A Study of Cooperative Education in Florida Community Colleges," Unpublished paper, Northeast Florida Cooperative Education Consortium, n.d.

The purpose of this study was to survey the crediting policies for cooperative education at twenty-one Florida community colleges. Eighteen colleges responded. From the survey it was concluded that: (1) cooperative education programs are being or have been established in Florida community colleges; (2) Florida is in line with the findings of the Center for Cooperative Education in that 46% of U.S. colleges offer credit; (3) the amount of credit seems appropriate and within the general policies for granting academic credit, and some colleges are flexible in granting more credit according to student achievement; (4) when a standard course numbering system is used, the problem of identifying coop may be eased. At this time only 4 colleges use the OCO prefix as recommended. Perhaps the departmental prefix (science, art, etc.) may prove more valuable in the long run and will indicate departmental involvement; (5) colleges are moving toward developing Learning Performance Objectives for cooperative education. Program objectives will be readily forthcoming, but the art and science of individualizing in a purely individualized program is probably not here yet.

Further inquiry should include the questions: (1) what is the institutional definition of cooperative education vis-a-vis work-study, or field experience? (2) what are the bases for granting academic credit? (3) and are there any means for program evaluation, and specifically is the consortium's evaluation checklist an appropriate first step?

Appendices include the credit survey and the checklist which is designed to help each college assess its program and to give guidance to external evaluators. It covers the broad topics of curriculum, procedures, program operation, counseling, administration, instructional materials, evaluation, and student positions criteria.

Cohn, Elchanan; Hu, Teh-Wei; and Kaufman, Jacob J. The Costs of Vocational and Nonvocational Programs: A Study of Michigan Secondary Schools. University Park, Pa.: Institute for Research on Human Resources, Pennsylvania State University, 1972.

The stated purposes of this report are first, to set forth in general terms the components of an overall evaluation plan of which it is emphasized that costs are only one component; second, to explain the concepts of added costs which will be utilized in the Pennsylvania State University study; third, to discuss the methodology employed and the data collected in the study; and fourth, to present cost data, and their analyses, which will permit the Michigan Department of Education and the legislature to make the appropriate decisions designed to accomplish their educational goals. More generally, however, the study attempts to estimate the added costs of vocational education in terms of both the average cost and marginal cost differences between vocational and nonvocational programs in secondary education.

Out of 236 schools chosen for the sample, 108 responded. Among them were 63 high schools offering vocational education, 41 high schools not offering vocational education, 1 community college, and 3 area skill centers.

To facilitate understanding of this report, a number of conceptual issues relating to cost analysis are discussed. These concepts include the nature of costs, the distinctions between costs and expenditures and between average and marginal costs, the definition of added costs, and the difference between short-run and long-run cost functions.

Also, a number of studies relating to cost estimates of vocational education are reviewed. This is followed by a brief discussion of incentive systems and benefit-cost and cost-effectiveness analyses.

Findings of the study include: (1) on the average, vocational costs exceed nonvocational costs by $95 per student hour, however within vocational programs, there is a wide variation of added costs; (2) the most reasonable measure of marginal added costs for purposes of this study is the one based on total cost including amortization of equipment; (3) marginal added costs of most of the vocational programs are positive; (4) on the average, the marginal cost of vocational courses is $115 higher than that of the nonvocational programs.

Finally, due to the small sample size in the survey, and the need to prorate amortization costs of equipment the results of this survey, according to the authors, should be used with caution.

Cooperative Education in the San Mateo Junior College District: A Two Year Demonstration Project in Community College Cooperation. San Mateo, Calif.: San Mateo Junior College District, 1969. (ED 040 710)

This report describes the 2-year cooperative education demonstration project conducted in three colleges of the San Mateo Junior College District (California). The project, involving all academic disciplines, offers coop students three plans: (1) the alternative pattern which allows long-term, concentrated work experience. This plan allows more variety of experience, even overseas positions; (2) the parallel plan in which students enjoy an uninterrupted program of college studies and social life. Learning in the classroom and at work are immediately complementary. And the students have a continuous source of income. However, scheduling and range of possible experience are limited; (3) the extended-day plan which is of particular benefit to evening students. Parallel involvement in work and study often enhances the possibility of job advancement.

The advantages found by the students in the program include a new feeling of community involvement, a greater sense of relevance from the college experience, and a high degree of financial security permitting regular college attendance. The two benefits cited most often by employers in the program are an opportunity to recruit trained personnel and the ability to get full-time coverage on a job.

Evaluation of the program by students and employers, and the career development program outlines are appended.

Cooperative Work Experience Project Report - Volume 1. Unpublished paper, Mt. Hood Community College, 1971.

This planning project was conducted at Mt. Hood Community College in 1971 to (1) determine which vocational-technical curricula would benefit most from the addition of a coop component, (2) choose the most desirable methods of program coordination, and (3) create a long-range plan for implementing coop education at MHCC. A survey of 225 vocational-technical program majors who were just completing their freshman year at MHCC indicated that an overwhelming majority believed that a coop program would be an asset to their curricula. It also showed that 75.4% need to work in order to continue their education, that 93.6% want to work in their career fields, and that only 6% were already working in their career fields. A study of MHCC program characteristics revealed that the incorporation of coop programs into existing federal and state programs would enhance the educational benefits of such programs without raising the operating costs and simultaneously increasing FTE vocational-technical capacity within existing buildings by 10-13%. On the basis of these surveys and other research, it is estimated that coop enrollment at MHCC will equal 160 students in 12 curricula in 1971-72 and will reach 255 students in 18 curricula in 1972-73. In 1970-71, MHCC had 931 vocational-technical students, only 42 of whom were involved in the 7 existing coop programs. The recommended program would employ a central coordinator to develop jobs and oversee coop operation. Instructor-coordinators affiliated with each curriculum would report directly to the appropriate division chairman of a given program. The program would allow four possible work-study patterns (half-day, half-week, alternating quarters, or summer employment) and academic credit would be granted for completion of a coop work assignment combined with a related work seminar. Most students would be placed in paid work stations, but it would also be possible to place some in voluntary positions. The survey instruments and sample forms are appended.

Davie, Robert S. and Russell, James K. "Attitudes and Abilities of Cooperative Students." The Australian Journal of Education, June 1974, 18, 160-171.

This Australian study investigates the claim that the integration of academic and work experience required in cooperative courses materially assists students in achieving greater development. Questionnaires were sent to 120 present and past students (62% response), 57 industrial employers (49% response), and 24 academic faculty (100% response). Four main areas of student activity were considered: his place in the organization, the quality of the work experience compared with student satisfaction, the attitude and behavior of coop students and graduates compared to their full-time counterparts, and the academic performance of coop students.

The student who has undertaken full industrial training is seen as requiring some, but not close supervision, as having a high level of responsibility for his assigned tasks, as taking an active part in decision making, and as making a reasonably large contribution to the overall operation of the company. Satisfaction is seen to be influenced by the level of responsibility for work, the amount of help received from fellow workers, and the amount of learning obtained. The contribution of the experience to an awareness of the relevance of academic studies was seen by all groups to be extremely high, although the academic group rates it more highly than the student group. All three groups see the coop students as having developed more mature social attitudes than the comparable full-time students. Coop students' performance changed from the inferiority of non-coop students, to superiority. Considerable effort and provision of adequate finance are needed for successful introduction of any new coop program. Wide scale adoption of coop education in Australia needs and warrants government sponsorship and support.

Garbin, Steven M., et al. Worker Adjustment Problems of Youth in Transition from School to Work. Research and Development Series No. 43. Columbus, Ohio: Ohio State University, Center for Vocational and Technical Education, 1970.

The purpose of this study was to identify youth adjustment problems in the transition from high school to work and to recommend possible solutions. Data collected in Columbus, Omaha and New Orleans through interviews with 642 workers between the ages of 17 and 27, focused on the following areas: (1) transition from high school to full-time work, (2) motivations, rewards and job evaluations, (3) relationships with work environment, (4) attitudes, values and behavioral work patterns, and (5) career patterns. It was found that 50% of those interviewed had majored in an academic curriculum, although only 33% received post-secondary education and 5% had graduated from college. Of the 292 who recommended another major in preparing for their present work, over 50% suggested vocational education; and only 50% of the sample felt their high school preparation useful for their job. Only guidance counselors assisted in identifying jobs for which students were prepared, and in general, schools were ineffectual job placers. One half had changed jobs at least once, while 20% had changed jobs in order to advance in their careers, thus showing little chance for mobility for those with similar training. These findings are relevant for administrators, teachers, counselors, and business leaders interested in improving the transition from school to work by providing nigh school students with more useful preparation and guidance.

Hopkins, Charles R. and McLean, Gary N. Effectiveness of Model Office, Cooperative Education, and Office Procedures in Developing Office Decision-Making Abilities, in Changing Perceptions of the Office World of Work, and in Developing a Knowledge of Business Fundamentals and General Business Information. St. Paul, Minn.: Minnesota State Dept. of Education; St. Paul Div. of Vocational and Technical Education, 1974. (ED 094 162)

A major purpose of this study was to measure and compare the effectiveness of office procedures, model office, and cooperative office education courses in developing 12th grade students' office decision-making abilities with those of office supervisors and office workers. Two other purposes of the study were to observe the changes in students' perceptions of the office world of work and to measure and compare knowledge of business fundamentals. The study was done by testing students before and after the courses and comparing the results, followed by a comparison of those results with results of a questionnaire from office workers and supervisors. Cooperative office education is a full-year course for 12th graders who attend school part of the day and are employed in an office capacity part of the day. Model office education is a full-year course at 2 hours per day, which replicates the organization, tasks, work qualifications, conditions, and standards, as found in a general office setting. Office procedures is a full-year course for 11th and 12th graders which develops and improves various office skills from using machines to office etiquette. Some of the conclusions drawn from this study were that students completing a model office course make different decisions as a result of the course, while no such difference was observed for the other types of office training. All students showed changed perceptions of job knowledge, job qualifications and total office work with the highest scores made by students completing the model office course. A bibliography, the test instruments and tabulated data from the study are appended.

Kingston, Carmela C. A Study of the Status and Effectiveness of Cooperative Office Education in New Jersey, 1968-1969. Trenton, New Jersey: New Jersey State Department of Education, 1970. (ED 060 182)

This monograph summarizes a doctoral study on the effectiveness and status of New Jersey's cooperative business education programs. The general hypotheses tested in the study were that compared to non-coop office education students, coop students will: (1) be employed sooner, (2) be employed in more responsible positions, (3) receive higher earnings, (4) be more satisfied with their jobs, and (5) be rated more highly by their job supervisors. Questionnaires were sent to principals in public high schools with coop office education programs in the 1968/1969 school year, to coordinators, to cooping business firms during that year, and to supervisors of both coop and non-coop office education graduates in full-time jobs. Information was gained from the graduates of the coop program through questionnaires first while in the program and then while in their first full-time jobs. Questionnaires were also sent to non-cooping office education graduates in full-time office jobs. Among the conclusions of the study were: (1) The coop office education programs benefited those students who wanted to begin working immediately after high school, (2) Coop office education did not appear to have an effect on the beginning salary, (3) Coop office education did appear to have an effect on salary increases received by beginning workers, (4) A high degree of job satisfaction was indicated by both the coop and non-coop students, (5) Employers were better satisfied with those beginning office workers who were coop office education graduates, and (6) Coop office education did not appear to have a significant effect on the quantity or quality of the work performed by the beginning office workers. It was recommended that coop office education programs (1) make job assignments more meaningful by allowing for transfers when necessary, by training in school for the particular job assignments, and by facilitating coordination between all participants; (2) provide for more meaningful program evaluation and follow-up information and for a study of factors related to job satisfaction of beginning office workers.

Lomen, Lynn D. and Standen, Robert S. To Determine If a Relationship Exists Between Success on the Job and How Students Rate the Overall Cooperative Education Program. Fort Lauderdale, Florida: Nova Univ.,1973. (ED 094 804)

The purpose of this study was to determine whether students who indicated success on the job evaluated the overall Cooperative Education Program any differently than did students who did not indicate success on the job. Experience has shown that the most important measures of success, in the students' eyes, are promotions and pay raises.

Data were collected from 249 students who had completed the program (41% female, 59% male). It was assumed that the sample of students was representative of the total population of coop students (excluding Administration of Justice students), and that the program format and content did not change significantly over the period. Questionnaires were answered at the close of each of three consecutive semesters.

Ninety-eight percent of the successful students--those who had received both a promotion and a pay raise-- rated the program excellent while 87% of the unsuccessful students did so. There is no evidence that a causal relation exists between success and satisfaction. However, since the students define success by these criteria, skills for acquiring promotions and pay raises should be emphasized-- especially personnel relations and technical skills.

It is recommended that the evaluation form be expanded and made more specific.

McNutt, Dorothy E. "A Comparison of Academic Achievement Between Cooperative Education Students and Non-Cooperative Education Students at College of the Mainland." Practicum for Ed.D., Nova University, December 1974.

College of the Mainland (COM) has supported a coop education program for business majors since 1969. This program is a one-, two-, or three-semester plan that offers a student work in the community during his studies at COM. Each of the three coop courses offers four hours credit for exploratory, career preparatory, or career retraining or enrichment objectives. The program is intended to complement and broaden the goals of formal academic and vocational preparation and to give the student an understanding of the interrelatedness of college study and daily life experiences. Each COM coop education student participates in the design of his own individual goals and objectives and in the design of his own achievement strategy. This document describes the coop education program at COM, reviews research pertaining to coop education in general, and describes a study comparing COM coop and non-coop students' mean GPAs in two courses. The mean GPA in Business Communications 231 and Business Psychology 231 for business majors completing at least one coop course prior to or concurrent with enrollment in these courses was significantly higher than the mean GPA in the same courses for business majors who never took a coop course.

Nolan, Tom. "Cooperative Education at Los Angeles Pierce College." Unpublished paper, Los Angeles Pierce College, 1973.

This report examines the goals and objectives of Cooperative Education at Pierce College during 1970-1971. It shows how the program works, how it helps students, employers, the business community, and the college. Cooperative Education at Pierce College is a shared program of education and training that prepares students for employment in their chosen careers. The program supplements classroom instruction with related on-the-job experience. Employers sign cooperative agreements with Pierce College to provide students with work experience and adequate supervision to ensure that job assignments are varied. This report covers the following aspects of the cooperative education program: (1) evaluation of work; (2) enrollment procedures; (3) eligibility to the program; (4) courses offered; (5) student responsibilities; (6) employer responsibilities; and (7) college responsibilities.

The initiation of a program of Cooperative Education at Pierce College during the 1970-1971 academic year brought encouraging results. With scarcely any publicity, the response from students and the business and industrial communities was outstanding. The enrollment of 125 students in the fall semester of 1970 jumped to 249 for the spring semester of 1971. During the fall semester of 1971, the enrollment increased to 265 excluding business students. Significant contacts were established with 253 employers, and additional employers have contacted the campus specifically requesting that Cooperative Education students be placed with their firms. The cooperation of the educational news editor of a local television station resulted in a feature release presenting an excellent story capsule on the advantages for the student of this program. The participation of students, employers, local lay advisory committee members, and faculty have all been encouraging. In addition, an assisting grant to Pierce College anticipates further growth and improvement in the program. A grant request for additional funding to continue development and expansion is being submitted under provisions of the Vocational Education Act, Part G. The staff will improve organization of related instruction involving class meetings and assignments, guest speakers, programmed instruction on the dial access system, and vocational information concerning job descriptions and opportunities. Additional emphasis will be upon placement services for students wanting to participate in Cooperative Education. Instructor time will be planned to assist with the anticipated increase in enrollment, and additional service for part-time evening students and apprenticeship students will be made available. Cooperative education benefits students, business, and industry. It produces well-trained, highly motivated students, workers, and citizens--reason enough for making Cooperative Education an integral part of the college curriculum.

Richardson, Ruth D. "An Evaluation of Part G Cooperative Vocational Education Programs in Selected High Schools in the State of Tennessee." Ed.D. Dissertation, University of Tennessee, 1974.

The purpose of this study was to evaluate the effectiveness of selected Part G programs in the State of Tennessee. Part G Cooperative Programs were developed as a result of the 1968 Amendments to the Vocational Education Act of 1963. The programs serve students who are not served by the traditional coop education programs. Four questionnaires were used to collect the data--two for students, one for professionals, and one for teacher-coordinators. The population consisted of 354 students, 15 teacher-coordinators, 15 principals, and 27 guidance counselors at 15 Tennessee secondary schools. Most of the students were seniors, and more than 90% had part-time jobs primarily in the trade and technical areas. All of the teacher-coordinators had at least a bachelor's degree; less than one half were certified as Part G teacher-coordinators. They all had non-teaching work experience.

While student responses were generally favorable, they did indicate that (1) they had little time for extra-curricular activities, (2) improvements were needed in the guidance and instruction areas. Professional perceptions of the program were favorable especially in the areas of Instruction, Coordination, Public Relations, and Evaluation. Less favorable items related to organization and utilization of an effective advisory committee, program publicity in the community, community involvement in evaluation, prevocational career information, and placement of graduates in the field for which they are trained. Principals exhibited the most favorable perception of the program, with teacher - coordinators next, and counselors last.

On comparisons made between student and coordinator responses on 13 comparable items, students tended to react less favorably to the Part G program than coordinators. Disparity of responses was especially evident in items concerned with the relationship of Part G projects to other classes, youth organizations, and human relations instruction. Students and coordinators were more nearly in agreement on items related to availability of job information, student workmanship, student evaluation, and adequate supplies and equipment.

Richardson, William B. "Cost Benefit Analysis of Vocational-Technical Education Programs in Missouri Junior Colleges." Ph.D. Dissertation, Universtiy of Missouri, 1972.

The major purposes of this study were: (1) to ascertain the student cost of two years of junior college vocational-technical education, (2) to determine the economic benefits of the students who had completed these vocational-technical programs, and (3) to determine the cost-benefit relationships of the vocational programs based on three investment criteria.

The task undertaken in conducting this study were: (1) to elicit the cooperation of the junior colleges in Missouri, (2) to identify the vocational-technical programs being offered by these junior colleges, (3) collect and analyze the cost of operating these programs, (4) follow-up the individuals who had completed these programs to determine the benefits attributable to junior college vocational-technical schooling, and (5) analyze the cost and benefits of each of the vocational programs by use of selected investment criteria.

Eight junior college districts in Missouri cooperated in the study. Cost data were estimated on seven vocational program areas being operated by these junior college districts. These program areas were: (1) Agricultural Business and Industry, (2) Business and Office Occupations, (3) Data Processing and Computer Science, (4) Distributive Education, (5) Health Occupations, (6) Public Service Related Occupations, and (7) Trade and Industrial Occupations.

The cost data were summarized and average annual costs over program area calculated. The average annual costs were doubled to arrive at a two-year added cost of operating a junior college vocational program. Monthly earnings were obtained from individuals who had completed programs during the fiscal years of 1968-69, 1969-70, and 1970-71. There were 289 usable responses from mailed questionnaires. Benefits accruing to students completing junior college education programs were determined by subtracting earnings of high school graduates from earnings of junior college graduates. Three levels of earnings of high school graduates who did not attend junior colleges were forecast. Multiple regression techniques were used in control for other graduate characterics that influence earnings so as to provide an estimate of the net benefits that could be attributable to junior college vocational training. Net benefits were projected forward over the expected lifetime of graduates and discounted to the present. Investment criteria were then applied to determine the feasibility of outlays of funds for vocational education at junior college level.

The major conclusions of the study were: (1) A standardized method of cost accounting should be developed and implemented by the junior colleges to aid in recording and analyzing the costs of the programs being operated by the junior colleges; (2) Vocational departments should strive to maintain up-to-date files and follow-up information on all individuals who have left the junior college vocational programs, either by graduation or for other reasons; (3) A standardized method of reporting vocational student enrollments should be developed by the Vocational Division and the Junior College Division of the Missouri State Department of Education; (4) Junior college program planners should broaden their perspective of vocational program evaluation to include both costs and benefits of vocational training in addition to the more traditional process evaluation. Scrutiny of cost data only, for decision making purposes, provides different results in terms of "investment favorability" ranking among program areas.

"The Rock Valley College Career Advancement Program." Unpublished paper, Rock Valley College, 1968. (ED 023 397)

The Career Advancement Program (CAP) is a joint effort by Rock Valley College (2-year) and industrial firms in its district to expand educational opportunities, to match college programs to local needs, and to help industry meet its present and future technical manpower needs. CAP has worked to attract students, full- or part-time, to technical training. Mechanical Technology and Electronics Advisory Committees set up a work-study program, with industry taking the lead in recruitment and in-plant training. Students are told of the program through the news media and by visits of both college and industry personnel to the high schools. So far, 36 companies have participated, with requests for 186 student-employees; 76 students enrolled in the first CAP group. This paper lists the program's advantages: career advancement, income while studying, continued education, community enthusiasm, etc. It also points out four main problems and their solutions: (1) the need for good communication between college and company is solved by dealing with a single liaison man at each firm; (2) if a student seeks an unsuitable job, the company puts him in touch with the college for redirection to suitable work or to CAP; (3) high school students are often deficient in mathematics; CAP therefore has its own special counselor; (4) coordination of class and in-plant training schedules is complex, but it can be accomplished by cooperation between company and college personnel. Guidelines and other details of the program are appended.

Rowe, Patricia M. "Motivation and Job Satisfaction on the Work Term of Cooperative Students." Journal of Cooperative Education, November 1970, 1, 13-23.

In order to determine whether Maslow's need hierarchy has validity for the coop student and to ascertain the factors which most influence coop students' job satisfaction, a series of tests was administered to 100 male coop students who were engaged in their work term and to their nine coordinators at Northeastern University. Students ranked security as the lowest level need and self-actualization and autonomy as the highest level needs. Coordinators perceived students' needs very much as the students did and believed that the more important student needs were more likely to have opportunities for satisfaction on the job than the less important ones. However, the ordering of student need satisfaction on the job was almost the opposite of that of need importance; that is, coop students perceived more opportunity to satisfy their security needs and less opportunity to satisfy their self-actualization and autonomy needs.

An examination of overall satisfaction for the 84 student respondents revealed that 51 were very satisfied with their placements, 21 were somewhat satisfied, and 12 were somewhat dissatisfied or very dissatisfied. The level of student job satisfaction was found to be unrelated either to salary or location. Those who were generally dissatisfied exhibited the same patterns of need dissatisfaction as those who were most satisfied, but to a considerably larger degree.

It was concluded that Maslow's need hierarchy has validity for the coop student and that perceived need satisfaction is the most important factor in influencing coop students' overall job satisfaction. It was also concluded that coop students order their needs like other workers do and that coordinators as a group evaluate student needs very well, but are much less capable of evaluating the opportunity for need satisfaction on the job.

School, Community, and Youth: Statewide Evaluation of Part G Programs in Cooperative Vocational Education in the State of Illionois/ 1971-72. Carbondale, Ill.: Southern Illinois University, 1972. (ED 066 559)

Two types of educational programs were designed to reach the potential dropout of 14-15 years of age and the early school leaver. The first program, known as the Work Experience and Career Exploration Program (WECEP), was developed to expose potential dropouts to the world of work and to impress upon them the importance of a high school education. The second program, the Early School Leaver Program (ESL), provides an opportunity to upgrade job skills by exploring the world of work and by acquiring better academic skills. The purpose of this study was to define the characteristics of students enrolled in Illinois Part G programs, to identify their needs and aspirations and to correlate those activities that appear most fruitful in achieving those students' objectives. Data includes health record surveys and questionnaire responses from employers, former and present students, teacher/coordinators, and administrators. The data was evaluated and recommendations made by various authors according to the following topics: (1) student characteristics, (2) health habits, (3) sleep and nutrition patterns, (4) student gains, (5) programs characteristics, (6) teacher-coordinator profile, (7) program administration, (8) costs allowed to employers and students, and (9) applications of a cost-benefit model to programs in coop vocational education.

Soper Associates. Cooperative Education at LaGuardia Community College: An Assessment and Description of the Initiation of an Innovative Curriculum-- Final Report. Berne, New York: Soper Associates, 1972. (ED 068 088)

LaGuardia College is the only community college in the United States requiring its entire student body to participate in a work-experience program regardless of curriculum choice. This study, conducted by a team of selected consultants, is an assessment of the program based on onsite visits, interviews, and an array of reports and publications. Areas of assessment were: (1) the legal framework, administrative structure, and facilities; (2) the college curriculum; (3) the recruitment and enrollment program; (4) student services; (5) the college's self-evaluation program; and (6) the degree of the college's success. Some conclusions were: (1) the curriculum, using an interdisciplinary approach, individualized instruction, and a work internship program, provides relevant experience for the student; (2) team counseling has proved to be effective and should be further developed; (3) there is a pronounced need for additional funding sources to aid the financially pressed student; (4) recruitment methods need to be more comprehensive; (5) the college should continue to seek methods for evaluation of objectives and progress; and (6) the program merits close study by other metropolitan area colleges.

Stromsdorfer, Ernst W. An Economic Analysis of the Work Experience and Career Exploration Program: 1971-1972 School Year. Final Report. Bloomington, Ind.: Indiana University Economics Dept., 1973. (ED 080 790)

The educational performance of 690 fourteen and fifteen year-old dropout-prone students given limited labor market experience was evaluated in a nationwide study. The students worked 28 hours per week during the 1971-72 school year, which was found to be excessive. Working increased grade point averages up to a point, after which favorable impact declined or became negative. The extent of career exploration experienced and its implications for longrun labor market prospects could not be discerned from the results of the study. The control group did not come from the same population as the program students. Non-response bias also makes the impact of the program unclear. A broader extension among the population of students to be served is recommended. Approximately one-half of the document is devoted to appendices covering data forms, questionnaires, child labor regulations, and survey analysis tables.

Stromsdorfer, Ernst W. and Fackler, James S. An Economic and Institutional Analysis of the Cooperative Vocational Education Program in Dayton, Ohio. Washington, DC.: Manpower Administration (DOL), Office of Research and Development, August, 1973. (ED 083 463)

This case study examines the economic and institutional impact of cooperative vocational education on the employment, earnings and educational performance of the 1966 and 1970 graduation cohorts of Patterson High School, Dayton, Ohio. The performance of these groups is contrasted with that of students in the comprehensive high schools for the same time period. The results of this study, based on mail questionnaire data and complete high school scholastic records, indicate a mixed picture of performance for coop education, especially when models employing multiple regression are used. However, the program is clearly a desirable educational alternative for some high school students. A bibliography of the economic analysis of coop vocational education as well as a survey of the methodologies of these studies is included in the analysis.

Taussig, Michael K. "An Economic Analysis of Vocational Education in New York High Schools," Journal of Human Resources, Supplement 1958, 3, 59-87.

The paper is a case study of vocational education in separate vocational urban public high schools. The analysis is performed within a standard cost-benefit framework. First, a brief outline of the institutional and historical background of the subject is presented. Then, a critical analysis is done on the employment experiences of recent graduates of the vocational schools in New York City. The major finding is the lack of apparent success of vocational training in increasing the market productivity of the graduates. This is despite the large incremental costs shown to be devoted to vocational training relative to alternative high school programs. Also noted is the lack of extant evidence on other aspects of economic analysis of secondary vocational education. That is, externalities and consumption effects are observed to be a major qualification to the findings from observable market experience. Taussig suggests that the schools' criteria for measuring the success of their programs are largely irrelevant from the viewpoint of the public interest.

He concludes that since returns to vocational education (despite data and methodological problems) have been meager relative to the considerable social investment in the program, the burden of demonstrating the value of a vocational education program should be on the proponents of the program. However, the relevant alternative in the past to vocational schools--the general course--has nothing to recommend it.

Taylor, Delores W. "A Study to Identify and Describe the Characteristics of the Cooperative Education Programs for the Disadvantaged in Michigan." Ph.D. Dissertation, Michigan State University, 1974.

This study was undertaken to (1) identify activities and programs of Part G Coop Programs for the Disadvantaged in Michigan as reported by coordinators, and (2) derive both implications of program value and some suggestions for further study and evaluation from the data. Questionnaire responses from 45 coordinators of Part G Programs in 36 Michigan school districts were analyzed. Of the Part G coordinators, 24.4% were female, with 4 of these black and 7 white; and 35.6% of the coordinators reported no years of occupational experience other than teaching, despite the Michigan Board of Education requirement. It was found that older coordinators had a better understanding of the advisory committee, of the school administration, and of the employers of disadvantaged students in Part G Programs. Coordinators serving students from urban areas tended to have higher perceptions of students' attitudes and to have better attitudes toward students. Eight coordinators reported 20-22 as the maximum number of class periods students are released from school for work. And there were no major differences in program activities based on type of students served, of which there were approximately 2,126 in Michigan during 1972/1973. The percentage of male students was higher in all areas; and the highest percentage of black students (68.9%) was in urban areas, with 81% and 82.1% being the percentages of white students served in rural and suburban areas. The percentage of Spanish, Oriental and American Indian was low to nonexistent in all areas.

It was concluded that a coop arrangement can be "good" only to the extent that it provides varied learning experiences, promotion opportunities, increased job skills, and dropout prevention. Time on the job should not interfere with the development of basic skills in the classroom. Recommendations include: (1) further evaluative research, (2) acceptance of disadvantaged students in regular vocational coop programs, (3) sophisticated yearly evaluations to test the effectiveness of programs, and (4) development of programs designed to mold disadvantaged youths' attitudes toward the world of work at the elementary level, thereby alleviating the problem of having to undo what has been done.

Wilson, James W. Impact of Cooperative Education upon Personal Development and Growth Values: Final Report to the Braitmayer Foundation. Boston, Mass.: Cooperative Education Research Center, 1974.

The purpose of this study was to examine the impact of cooperative education upon personal development and growth values. Interviews were conducted with 456 Northeastern University Liberal Arts undergraduate students distributed across all four classes. Of the students, 293 either had had one or more coop experiences or indicated their intention to participate in the cooperative education program. The remaining 163 students neither had nor intended to participate in the program and therefore served as a control group. The two samples were found to differ, first of all, with respect to age, sex, and social class characteristics. It seems reasonable that these differences in input data have import for understanding fully the results of the outcome data.

The outcome data collected were student perceptions of changes occurring in themselves since entering college and the agents of perceived changes, career attitudes and expectations, social and humanistic attitudes, and student voluntary activities. The principal findings of the research are as follows: (1) cooperative education students perceive greater personal changes since entering college, particularly in the area of career development; (2) there is a consistent and clear trend, inferred from the results of comparisons across classes, within the cooperative education group, to perceive greater personal change as they progress from freshman to senior standing; (3) the most important agent for change was perceived to be maturity, but almost as important for the coop sample only was work experience; (4) as freshmen, substantially more coop students were unsure of their career goals. As upperclassmen, they did not differ from the non-coop students with regard to having made a career decision, but they more frequently selected non-service careers;

(5) high priority on career establishment among coop students and personal well being among non-coop students was seen; (6) the attitudes of both samples of students toward people in general, minorities, women, and society as a whole were very similar, but the coop students evidence more conservative, cautious, and prudent judgment.

Wooldridge, Roy L. Analysis of Student Employment in a Cooperative Program.
Boston, Mass.: Center for Cooperative Education, Northeastern University
November, 1972.

The bulk of this report consists of tables presenting data related to the job placements of work-study students according to their academic majors within the eight colleges at Northeastern University. During the winter and spring work periods of the 1972 academic year, 8,264 of nearly 14,000 undergraduates were involved in work-study patterns; this study is limited to sophomore and senior students only. It is useful as a list of the types of employers who can be approached to provide cooperative experience for students in various majors and for noting entry position jobs available to each major and final assignments just prior to graduation. Also included in the report are sketches of the history and present status of cooperative education as well as discussions of the integration of work and study, the roles of school administrators and of cooperative education coordinators, and the reception of cooperative education by business and industry.

230

Yackee, Keith W. "The Social Rate of Return on Investment in Vocational Education: A Case Study in a Rural Appalachian Ohio Community." Ph.D. Dissertation, Ohio University, 1973.

This study represents an attempt to determine if an investment in vocational education receives a higher social rate of return than an investment in a general high school education in a rural, Appalachian Ohio area. The study seeks to determine if there is any difference in academic ability, social class background, or wage and earnings patterns in the first year after graduation between a general high school graduate and a vocational high school graduate.

Subjects of the study were those 1971 graduates of a rural, Appalachian Ohio high school both vocational and non-vocational, who did not go on to some form of higher education or the armed forces.

When the type of student who graduated from a vocational education program was compared to the type of student who graduated from a general high school program, little difference was found in ability, socio-economic standing, or beginning wage rates. Only sex and the number of jobs subsequently held seems to have significant effect on the beginning wages. After initial entry into the labor force, class rank and sex are the only variables which seem to significantly effect estimated yearly earnings and wages after one year.

According to the study, the program from which the student graduates does not have a significant effect on wages and earnings during his first year after graduation; the economic benefits of vocational education, both to the student and the community, seem to be nil.

On the other hand, the possible benefits of vocational education may not all be in the economic sphere, and methods have not been developed to measure all of the economic benefits that possibly do exist.

COMMENTARY/HISTORY

(Section II)

American Vocational Association. The Role of Postsecondary Occupational Education. Washington, D.C.: American Vocational Association, 1972.

Post-secondary occupational education was created to meet the developing needs for a new class of worker--the technician, the technologist, the semi-professional working as an assistant to professionals. This publication deals with the importance of post-secondary programs in meeting the manpower demands created by technological advancement. Among the topics discussed are: (1) the need for post-secondary institutions to meet the needs of people and communities who will use the institutions and to keep pace with rapid changes taking place in regard to the needs and opportunities associated with occupational preparation, (2) the role of post-secondary education in providing the opportunity to continue training or upgrade skills, (3) aspects to consider in developing and implementing effective post-secondary occupational programs, and (4) the need for a more positive, aggressive, and dynamic attitude and approach to post-secondary occupational education. Restructuring of the programs should include the following criteria and considerations: (a) to avoid increased specialization that leads to "dead-end" opportunities and too-narrow career preparation; (b) to provide greater student mobility and program flexibility; (c) to provide for new learning plans, methods, and procedures; (d) to provide for a new independence on the part of students, while helping the student develop his or her own learning experiences; (e) to provide for new times and places for learning; (f) to provide for more experience in the job setting; and (g) to develop enough curriculum flexibility so that there will be no "failures."

Barbeau, Joseph E. "Cooperative Education in the Junior Colleges." Unpublished paper, Northeastern University, n.d.

The purpose of this paper is to outline the historical development of cooperative education in junior colleges. The growth of cooperative education has been slow and steady over the past 65 years, but this growth has taken a sharp rise in the last three years. The number of schools offering cooperative programs has increased 48% in the last year alone and has increased by 93% since 1969. 30% of all colleges offering cooperative education programs are junior colleges.

At the University of Cincinnati, in 1906, Dean Herman Schneider instituted the first cooperative education program which began in the College of Engineering. Most programs remained in that field of knowledge until 1921 when Antioch College organized the first cooperative program in the Liberal Arts. This opened the door to much experimentation of cooperative education during the 1920's and its use spread to nursing, medicine, theology, business, and teacher training. It was during this period that the first junior college adopted the cooperative program. Although the first cooperative programs in two-year colleges were at technical institutes, by 1922, Riverside City College had a program which offered cooperative education in such fields as nursing, architecture, and library work. The greatest growth of cooperative programs was during the depression.

Between the two world wars, only minimal federal aid was allocated for the development of cooperative education. Schools did not begin cooperative programs with an eye toward federal funding; rather, they initiated these programs because they offered several advantages that conventional programs could not offer: the correlation between theory and practice, the development of skills in the area of interpersonal relations, and the ability of the student to earn a portion of his college expenses.

After the second world war, education in general, and junior college education in particular, grew at unprecedented rates. But the use of cooperative education in the junior college showed little growth until the latter part of the sixties. Since 1969, some 48 junior colleges have started cooperative programs or are in the planning stages for them. In 1970, the federal government appropriated 1.3 million dollars for institutions wishing to begin or improve cooperative education programs. It appears that government support will continue to grow in encouraging the development of cooperative education programs.

Beaton, Dr. Roy H. "A Corporate View of Cooperative Education and Its
Usefulness from an Economic and Training Viewpoint." Paper presented
at the National Conference on Cooperative Education, April 21, 1972.

In his speech, Beaton discusses the value of Cooperative Education to Industry. He begins by making the following assumptions: (1) The values of a cooperative education system to the student, the educational institution participating in the system, and to society at large are sufficiently numerous, significant, and beneficial to those parties named that its worth is undebatable; (2) Essentially all large corporations of national significance have been at least participating in cooperative education programs for many years, even if with widely varying degrees of interest, commitment, and success of utilization; and (3) Most companies participating in cooperative education programs have been, and still are, extremely hard put to develop hard dollars and cents statistical data on the economic values and benefits accruing to them from this participation. From these assumptions, Beaton then makes the following generalizations: (1) Coop students generally make willing, quick-to-learn, hard working employees. Those in industry usually find that the coop student recognizes better than a non-college employee that even low-level work can provide both a challenge and an opportunity to learn and that such work, if performed with demonstrated interest and careful attention, can and does lead to better jobs. Consequently, the employer generally more than gets his money's worth out of the coop student employee; (2) Coop student employees generally are loyal, if treated right, and their job turn-over rates are very low. When the student reciprocates by providing dedicated services and high job interest to his employer who provides continuous employment during the three-to-four year work-study period, the relationship is a lasting one. Reduced "job hopping" and low employee turn-over is money in pocket for the employer; (3) Coop employment provides the employer an excellent opportunity to evaluate a potential full-time employee before hiring him after graduation. The coop worker has already been tested in the actual work environment and his future performance is more predictable than the single-interview candidate; (4) Coop student employees most often are "good will" ambassadors for the corporation back at the campus; they provide an excellent channel for getting the corporate message back to the college community that business and industry can and are making significant contributions to our total society; (5) Employers get much higher yields from full-time job offers to their coops than from non-coop graduate offers. It is universally true that companies participating in cooperative education programs obtain much higher yields of acceptances from full-time job offers to their coop student workers than from non-coop candidates for employment after graduation; (6) Coop graduates require less training time on a permanent position and initially progress faster than non-coops.

Beaton claims that "in over-all balance, the industrial or business employer gets at least his money's worth out of participation in the cooperative education system." Some reasons why companies may not attain maximum value from the program include: (1) The company may be too decentralized in matters of coop student hiring and work practices and dozens of individual organization components may or may not participate, at local option and in provincial fashion; (2) The coop jobs assigned may really be too far below the level of capability of the student employee and his initiative, interest, and potential zeal are stifled rather than nourished and encouraged; and (3) The top management and/or first-line supervision may not feel that they have the time to tailor and mold certain jobs to the student employee and may not follow-up to see how both they and he can derive the maximum benefits from the arrangement.

Bender, Louis W. et al. Cooperative Education: Conception to Credibility.
Tallahassee, Fla.: Florida State University, Center for State and
Regional Leadership, 1975.

This report provides an analysis of the evolution of cooperative education within an historical-educational context. Chapter I reviews past definitions of coop education and presents the following definitional framework for the concept: "Cooperative Education is a post-secondary work experience program designed to produce academic, career and/or personal enrichment opportunities for a student while he or she is fully enrolled and registered at the institution. The work experience involves a definitive period or periods of employment supplementing full- or part-time study on campus. Evaluation of the experience is performed by all participants (student, employer, and institution) based on pre-determined learning objectives dependent upon the work experience itself. The student's participation is considered an integral part of the educational process for that individual." Chapter II looks at the historical evolution of formal work experience programs from social, educational, and chronological events. Chapters III and IV summarize the reports of privately supported study groups and task forces, and governmental groups,in order to determine the past and present attitudes and roles of such groups. Chapter V places coop education in its total social context and provides predictions for the future.

Borman, Alvah K. "Graduate Study: A New Approach Through Cooperative Education." Journal of Cooperative Education, November 1966, 3, 10-27.

Graduate Cooperative Education is a relatively new concept. From its inception in 1906, coop education was limited to undergraduates until 1956 when Northeastern University established the first program for graduate students. The primary reason for extending coop education to the graduate level was that new fields of knowledge were opening up which required study beyond the Bachelor's Degree. As with undergraduates, this program was an attempt to answer the problem of dividing the student's time and energy between school and work, and it was an effort to help integrate the practical world into the student's academic achievement.

Graduate coop education is defined as "an integration of classroom work and professional experience in an organized program under which graduate students alternate periods of full-time employment in industrial, business, government, and social service organizations." The graduate coop program involves six types of participants: (1) the students who must be aware of the opportunities gained in integrating their academic and professional experiences and who can better see how their specializations fit into the practical world outside the university; (2) the managers of the employing agencies which must realize the goals of the program so policies affecting its operation can be established and effectively followed; (3) the students' supervisors who must insure that a balance exists between guiding the student and giving him the challenge of making his own decisions on the technicalities of his work; (4) the academic institutions which must provide moral and financial support for the program to successfully operate; (5) the faculty which must be prepared to deal with specific problems the coop student may experience and who will benefit from the student's knowledge of the latest developments in the field; and (6) the coordinators who bring the preceeding five groups of people together so that the program can operate smoothly.

A graduate student is placed in a job which he has held as an undergraduate in the program, which he has previously had a specific interest in, or which the coordinator finds for him. In some cases, a student can do his thesis work with the cooperating institution. Channels of communication are set up between the faculty advisor and the work supervisor, and any problems resulting from the thesis work, including those of protecting patents, are worked out.

The student's salary is not determined by the university; rather, the coordinator often advises the employer to pay what he feels is just in terms of the student's experience and his potential value to the organization. An engineering salary survey taken in 1965 showed salaries ranging between $140 and $200 per week; the average, $155, is that of the 1965 graduate salary averages for the first job after graduation.

Charner, Ivan. The Potential of Career Education: A Sociological Perspective. Unpublished Paper, National Institute of Education, 1974.

By introducing students to a wider range of experiences while in school through work experience and through contact with a variety of societal roles, career education can expand traditional education in ways which will help each student direct his own life and which will thereby effect changes in society. The five purposes of career education as defined by Schwab, Walker and Eisner (1974) are elaborated: (1) to match individuals' interests and capabilities with the job market without forcing stereotypes and premature career decisions on students; (2) to develop an awareness of adult roles beyond those seen in teachers and relatives; (3) to provide more diverse routes to recognized and rewarded masteries within compulsory public education; (4) to increase students' understanding of the economic, social, and political systems so that they can help themselves and help change social institutions; (5) to provide secondary school students with the opportunity to acquire the skills and knowledge needed to support themselves in the future, while stressing flexibility rather than vocational/technical skills only. Beyond fulfilling these purposes, career education can change the focus of education in several ways. With the adoption of career education programs will come a concurrent move toward emphasizing those decision-making skills which lead to greater self-awareness and self-determination. It will expose students to more diverse experiences and to social values and behaviors helpful for functioning in the adult world. It may also change stereotypes by exposing women to new career alternatives. Career education may take students out of school or may make school more meaningful for students so that the onus of the school's custodial function is reduced. It will give part of the job of certification to employers, co-workers, and community members and will spur the movement toward competency-based education. By providing alternative programs which recognize and reward students for a wider range of masteries, career education can positively alter the traditional selection processes of higher education.

Donley, Audrey Bell. "Cooperative Office Education: Its Evolution in the Secondary Schools of the United States from 1900-1969." Ph.D. Dissertation, North Dakota University, 1971.

Using the historical, documentary analysis, and questionnaire methods of research, this study traces the development and evolution of coop office education in the secondary schools of the United States from 1900-1969. The study was organized under the following topical divisions: (1) origin of vocational education, (2) development of vocational education, (3) emerging of coop education, (4) establishment of coop programs in business education, (5) growth of coop office education, (6) national overview of coop office education. Among the points brought out in the study were: (1) business education was found only in the technical and commercial secondary schools of the larger cities before the first decade of the 20th century, (2) although not supported by federal assistance, business education by 1930 was taking a lead in developing coop education programs, (3) coop office education programs most often began in large industrial cities and states, and (4) since 1963, program objectives have tended to be more student oriented. Recommendations for further research and for improving coop office education are included.

Draper, Dr. Edgar D. "Higher Education Over the Next Decade - The Role of Cooperative Education." Paper presented to 1973 CEA/CED International Conference, April 25, 1973.

In his speech, Dr. Draper discusses the development and continued progress of cooperative education programs. Cooperative Education has helped many students develop better habits for both studying and working. The students' earnings, although small, contribute to his start toward financial independence. Draper notes that for many students--especially minority or disadvantaged students--their roles in cooperative education programs place them for the first time in totally new environments.

Regarding the future of cooperative education programs, Draper makes the following suggestions: (1) Coop education programs must be broadened so that they are not mainly concerned with engineering and business curricula. Institutions must offer programs in social welfare, urban planning, environmental protection, anti-pollution technology, smog control, pre-nursery care, senior citizen care, legal technology, criminal justice for the disadvantaged, mass transportation technology, mini-transportation, and other programs which the 1970's have shown to be necessary; (2) Time-sequence syndromes, such as one in which a student works a specific number of hours a week, and spends the rest of the available time in classrooms and laboratories, must be avoided. The employer must provide a specific work-availability-bloc which will be occupied by students. The bloc might be so many jobs per week for twelve months a year or ten months a year or six months a year. Or it might be the first week of every month, or the vacation periods at the employer organization. Once the employer establishes specific work-availability-blocs, then the institution and its faculty can establish greater varieties of opportunities for the students.

These blocs would enable students to better plan their programs and would offer the faculty the possibility of being more creative in educational programming; (3) Services of young faculty must be more effectively utilized. Young faculty members should be available for cooperative education with students at varying periods during the year; they must be allowed to learn the current problems and techniques in their particular field by periodically returning to the business or industry community; (4) Cooperative education experiences must be provided for students in all age groups. No one is "too old to be educated." Age should be no limiting factor, any more than religion or color or creed should be limiting factors; (5) There must be additional ways to learn besides the classroom and the textbook. The concept of less-structured learning must be encouraged. In addition, cooperative education should not be a program solely for the low income student who needs the money to remain in school. Cooperative education programs must be integrated with students of different races, different socio-economic levels, and different intellectual capabilities; (6) Continuing education must be encouraged. The student who stops to take one course, intent upon developing a better career in his area, or building his career toward a different area, is essentially a cooperative education student even though he is not provided with a co-oping firm; and (7) Meaningless jobs must be avoided for students of cooperative education. Institutions must find meaningful experiences that are educational for their students. Too many students have jobs requiring them to simply stuff envelopes. Some institutions allow students to participate in designing curricula for regular programs. Teachers in cooperative education must strike a balance between such student options and student-designed resources and the specifics that educators know are essential to the programs already in existence.

Evans, Rupert N. "Cooperative Programs; Advantages, Disadvantages, and Factors in Development." American Vocational Journal, May 1969, 44, 19-22; 58.

After a review of the history of cooperative education in high schools and of federal funding and its effects, the author discusses several advantages, disadvantages, and factors in development of coop programs. Advantages include: (1) quick adaptabilty to changes in the labor market and flexibility and choice in career area; (2) training positions are most available in fields with the greater labor shortages and are closely related to opportunities for full-time employment; (3) coop education needs lower capital outlay for space and equipment than does instruction in a school laboratory and the student comes in contact with expensive, specialized equipment; (4) cooperative education stimulates desirable attitudes toward work; (5) a given occupational field may be pursued by only a few students whereas 10-15 are needed for an economical classroom situation.

However, there are disadvantages inherent to cooperative education: (1) it is not adaptable to communities with very small or declining populations or declining occupational economic bases; (2) programs are difficult to operate in establishments with strong agreements with employees about hiring practices; (3) the number of students who may profit from coop programs is determined by the birthrate 16-18 years previous; (4) even minor economic recessions hamper coop education badly.

Many problems posed by coop programs can be overcome through careful planning and education of the school and community. Problems include: (1) a shortage of qualified teacher-coordinators especially in the face of opposition to coop education among many vocational teachers fearful of losing their students and their jobs; (2) not enough jobs are available for all of the graduates who are ready to work in either June or September-- a year-round program would ameliorate this seasonal flood problem; (3) coop education is often opposed by individuals who believe instruction only happens in school; (4) programs may be affected by wage-hour and youth employment laws; (5) arbitrary regulations about what constitutes vocational education and what constitutes teacher/employer qualifications, hampers programs; (6) some school districts have unwisely adopted work-study programs which are not educationally defensible but which require less local financial support; (7) programs have been limited by a shortage of instructional material; and (8) coop education suffers from the American tendency to devalue non-professional work experience.

Kane, Stephen M. "An Overview of Federal Government Policies Regarding Cooperative Education." Manuscript prepared at Department of Cooperative Education, Northeastern University, February, 1975.

The first part of this paper deals with the policies of the Federal Government in hiring students in cooperative education programs. Regarding salary, it is Government policy that salaries of Federal Cooperative employees should be comparable to those paid by private employers for work at the same levels of difficulty and responsibility. Government salaries are reviewed frequently and changes made as needed. This means that persons choosing careers in Federal Service may expect, over the years, pay realistically geared to the economy.

There exists a hierarchy of levels to which a student may be hired, and promotions are available to students if they meet certain specifications. A few federal agencies such as the Central Intelligence Agency, the National Security Agency, and the Tennessee Valley Authority operate on pay schedules elevated above the standard rates. Policies regarding the number of hours worked, sick leave, vacation pay, injury compensation and group life insurance, health benefits, retirement, layoffs, and unemployment compensations are also outlined in this paper.

The second part of the paper lists the policies of the Environmental Science Services Administration (ESSA) in employing students in coop work-study programs. Students who qualify to participate in this program must (1) be enrolled in curricula leading to degrees in shortage occupations as defined by current regulations of the Civil Service Commission, and (2) have a "B Average" in high school or college work (or otherwise be certificated that past achievement will predict highly successful performance in the program). Additional conditions for qualifying for this program include: (1) Participants must work at least six months in the ESSA with work periods not restricted to summer vacation periods; (2) The participating institution must maintain an undergraduate program involving alternating periods of planned work experience and related study in either (a) a cooperative curriculum in which the work experience is a prerequisite to the award of a degree, or (b) a curriculum where formal arrangements are made with the ESSA for selecting and retaining trainees and for scheduling and coordinating work experience and academic study; and (3) The institution must publicize the Environmental Science Services Administration's participation in its cooperative education program and advise prospective candidates of opportunities, requirements and procedures of the program.

Notes and Working Papers from the National Conference on Cooperative Education: Implications of the 1968 Amendments. Unpublished paper, Minnesota University, 1969. (ED 034 888)

About 200 representatives of business, industry, labor, government, education and community interests from across the nation participated in the conference which was planned to provide for further development of understandings, abilities, skills and appreciations of those persons responsible for comprehensive programs of vocational-technical education. The report includes a chart which outlines the provisions of Public Law 90-576 relating to cooperative vocational education, abstracts of major papers, recommendations regarding clarification of state plan requirements under Part G of Section 173 of the 1968 amendments, and recommendations for planning and operating cooperative programs. Major papers presented by the consultants include: (1) Congressional Expectations of Cooperative Vocational Education, (2) The Silent Field and the Dark Sun, (3) The Employer's Role in Cooperative Occupational Education, (4) The School's Role in Cooperative Occupational Education, (5) The Community Role in Cooperative Vocational Education, (6) A Comparative Study of Two Concurrent Work-Education Models in Agriculture, and (7) an abstract of "Interpretive Study of Cooperative Efforts of Private Industry and the Schools to Provide Job-Oriented Education Programs for the Disadvantaged." The recommendations for planning include: greater lead time in planning (5 years), priority funding, use of private non-profit schools, use of advisory committees, identification of the role of labor unions, examination of rural versus metropolitan programs, and identification of the community role.

Somers, Gerald G. "The Response of Vocational Education to Labor Market Changes." The Journal of Human Resources, Supplement 1968, 3, 32-58.

The traditional vocational education system in the United States has been criticized for its lack of responsiveness to the needs of a changing labor market. The Vocational Education Act of 1963--a measure which gave primary emphasis to the required collaboration of occupational preparation and labor market analysis--resulted from these criticisms; but the critics have not been satisfied. The purpose of this paper is to evaluate the relationship of vocational education to the labor market from the standpoints of the changing composition of vocational school enrollment, job placement results, cost-benefit evaluation, and the accommodation of the needs of the disadvantaged.

In appraising the sluggishness of response, this paper addresses itself to the procedures used in initiating new vocational programs, the adequacy of labor market data available for vocational education planning, and the utilization of these data by vocational educators. Although it is true that the labor market expert has not provided the vocational educator with all the data needed for realistic planning, it cannot be said that the educator has made full use of the data which is available. His failure to do so contributes to vocational education's lack of responsiveness to larbor market changes. To encourage greater utilization by vocational educators of labor market data provided by the Employment Service the following steps are necessary: more money and men must be allocated to the employment offices for this purpose; Employment Service personnel must be given a clearer understanding of the specific data needs of the school boards, and the schools must hire or train labor market experts who can interpret the Employment Service data and implement them accurately.

STUDIES--ACROSS PROGRAMS

(Section II)

Azzi, Corry F. Equity and Efficiency Effects from Manpower Programs.
Lexington, Mass.: Lexington Books, 1973.

Although the recent development and proliferation of federally subsidized manpower programs designed to benefit the disadvantaged has received considerable attention, Azzi believes that studies which attempted to quantify the costs and benefits of these programs have been inadequate. He asserts that by assuming that wages equal marginal value product, the analyses have been based on highly unrealistic models of the behavior of firms. As a result, such studies may not have provided accurate information on both the magnitude and distribution of program costs and benefits.

Azzi instead suggests a new model for use in evaluating firm-subsidized manpower programs. Since such programs exist in an uncertain world bounded by institutional constraints such as work roles and traditions, where information is not complete or perfect, and where employees are vested with specific skills, the analyses by manpower programs here are based on a human capital model where marginal value product need not equal wages. The model relates investment in human capital to the behavior of firms. It is used to discuss hiring and training decisions, assuming fixed wages and prices of training resources. The importance of training costs is emphasized as is job performance. Differences in expected training costs and job performances among a diverse group of job applicants is shown to be important to hiring, training, and promotion decisions if wages are fixed and not equal to marginal value product. If this situation exists, marginal value product in excess of wages is a return to the firm which it can affect by selecting employees who require minimal training expenditures and offer good job performance.

Azzi demonstrates that it may be that a significant proportion of benefits do not accrue to the disadvantaged but rather go mostly to firms and shareholders in the form of reduced training costs. It may be that benefits for the disadvantaged may not offset the costs imposed on taxpayers.

Azzi reports two empirical studies designed to see if the training programs have altered the two firms' training and promotion decisions in favor of the trainees.

All data indicate that the shipbuilders' manpower program did not benefit the subsidized trainees because it did not offset the marginal decision of the firm. Similarly, for the electronics components manufacturers, there is strong evidence that the training programs did not affect hiring decisions. They did not reduce the incidence of low wage jobs or unemployment within the target population.

Azzi concludes that before granting a subsidy to a firm for a manpower training program, analysis should be done to determine firms' normal hiring policy so that effects of the subsidy on practices of target group hiring may be predicted.

Bowlby, Roger L. and Shriver, William R. "Nonwage Benefits of Vocational Training: Employability and Mobility," Industrial and Labor Relations Review, July 1970, 23. 500-509.

The study evaluates two nonwage, economic effects of vocational education: increased employability and increased occupational mobility.

In order to investigate the effects of vocational training on labor-force participation and unemployment, an experimental design (controlling for exogenous variables) was developed. The design provided for an experimental group consisting of members who had received Tennessee Area Vocational-Technical School (AUTS) training and a control group consisting of specific cohorts "methodically matched" to the individual members of the experimental group.

The experimental group members were randomly selected from AUTS records. Questionnaires were mailed to members of both groups in February, 1969. Questionnaires provided demographic characteristics and the record of labor-force experience in 1968, including salary and occupational mobility.

The findings indicate that the vocationally trained workers had higher mean labor force participation rates, lower mean unemployment rates, and higher mean occupational mobility rates. However, the authors note that despite the experimental design, differences may exist between the experimental and control groups with respect to motivational or achievement factors. Noted also was that students pursuing academic programs were not matched with students in general or vocational programs.

The authors conclude that the evidence presented here lends strong support to the thesis that vocational training (in addition to increasing earning rates) is an effective instrument through which the commitment to work may be amplified and the rational selection process in the job market may be enhanced.

Buttery, William Albert. "A Comparative Study of the Evaluation of Collegiate Cooperative Education Coordinator Functions." Ed.D. Dissertation, Arizona State University, 1971.

This study was conducted to ascertain whether selected personnel functioning as collegiate coordinators of cooperative education programs agree with corporate coordinators with respect to the ranking of 14 coordinator functions. Identical forms were sent to 90 collegiate and 100 corporate coordinators which gave a 54 and 40 percent return, respectively. Based on the analysis of their ranking, a coordinator job description should include these 8 items which were ranked highest by both groups: (1) to coordinate and supervise the cooperative education of an assigned group of students; (2) to serve as a liaison between the cooperative institution and the employers regarding administrative and operating requirements of the program; (3) to help his students secure initial satisfactory cooperative employment as well as subsequent opportunities through the placement process; (4) to conduct follow-up activities regarding all placements by checking each student's job performance through company visits and individual student conferences; (5) to solicit cooperative jobs suited to the needs and qualifications of his students; (6) to disseminate occupational information; (7) to counsel his students regarding their educational, vocational, and personal development; and (8) to vigorously promote, encourage, and recommend the advantages of the cooperative plan to the college and the public.

Cain, Glen G. Benefit/Cost Estimates for Job Corps, Discussion Papers. Madison, Wisc.: Wisconsin University, Institute for Research on Poverty, 1967.

In this review, benefits are equated with the impact of the Job Corps on increasing earnings of the Corpsmen above what their earnings would have been in the absence of the program. Earning improvements are measured in two alternative ways: (1) the educational gains achieved in the Job Corps in conjunction with education and life-time earnings, and (2) comparison of wages earned by ex-Corpsmen with the wages of a comparable group of youth who had no Job Corps experience. Net costs of the average five-month Job Corps experience is estimated at $3500, and this figure includes an allowance for the overhead expenses of Job Corps and for the earnings foregone by the Corpsmen during their training. Appraised value of work projects is subtracted from costs and, finally, the value of transfer payments made to Corpsmen is deducted. Analysis is supported by a technical discussion of source materials and procedures used to manipulate data.

Corranzini, Arthur. "The Decision to Invest in Vocational Education." Journal of Human Resources, 1968 Supplement, 3, 88-120.

The purpose of this study is to measure the economic benefits of the vocational-technical school to the individual graduate and to the local community. Further, these benefits are compared with the economic costs of maintaining the school. To this end, the current and capital direct and implicit costs of the community high school system in Worcester, Massachusetts are calculated. These cost calculations, along with estimates of private direct and opportunity costs, are then used in the over-all evaluation of the investment in vocational education.

The benefit-cost evaluation makes use of wage data taken from a sample of forms in the Worcester area which hired male graduates of both the vocational and the regular high school as well as the starting wages of all graduates of the vocational high school for boys. In addition to this direct evaluation, the benefits and costs of the vocational program as an investment in dropout prevention are considered. Also, the effects of vocational education on geographic mobility are reported.

The findings are not "overly optimistic" for proponents of vocational education. The program of vocational education for boys, whether viewed as an alternative to general high school education or as a dropout prevention program, was, at best, only marginally profitable. The data suggest that cheaper ways need to be found to keep people in school and to provide them with the skills necessary for employment.

DeVore, Jack B. "A Cost-Benefit Analysis of Training Programs in Kansas' Fourteen Vocational Area Schools." Ph.D. Dissertation, Kansas State University, 1974,

The study attempted to answer the question, "Does the type and/or location of vocational programs influence the societal accrued long run benefits and societal payback periods?" The population selected for use in this study consisted of all programs in the fourteen Kansas Area Vocational Technical Schools.

The hypotheses tested were:

(1) There is no significant difference between payback periods for the different program types in the fourteen area schools in Kansas. Hypotheses 1 was rejected on the basis of an F-ratio of 23.4.

(2) There is no significant difference between the accrued long run benefits from the different vocational program types in the fourteen area schools in Kansas. Hypothesis 2 was rejected on the basis of an F-ratio of 37.2.

(3) There is no significant difference in the payback periods for vocational programs in the different area schools in Kansas. Hypothesis 3 was retained on the basis of an F-ratio of .30.

(4) There is no significant difference in the accrued long run benefits for vocational programs in the different area schools in Kansas. Hypothesis 4 was retained on the basis of an F-ratio of .26.

The cost/benefit model provided an estimate of payback periods and accrued long run benefits. The payback periods were determined from the intersection of a line representing the accumulated productivity of a non-vocational graduate and a line representing the accumulated productivity of a vocational graduate on a time and dollar graph. The accrued long run benefits were determined by examining the difference between these lines when time equals 47 years after high school graduation.

Accrued long run benefits and payback periods were to some extent dependent upon program type. The geographic location of the program type (school) appeared to have little effect on the accrued long run benefits and payback periods.

The cost/benefit study indicated that the training in the fourteen area vocational and technical schools in Kansas did not return society's original financial investment. Placement, instructional cost and length of training programs were major variables contributing to this finding.

General and Vocational Work Experience Education Programs Management System: Career Development Programs. San Mateo, Calif.: San Mateo Union High School District, 1942. (ED 076 816)

The General and Vocational Work Experience Education Programs management system is designed to assist the local school teacher/coordinator in the organization and management of the programs. The system defines and describes the accountability line from the Work Experience Education teacher/coordinator, through the Career Planning and Placement Center teacher/coordinator and the local school principal to the director of the Career Development Programs. Included in this manual are: (1) a statement of the school district's educational philosophy, (2) a description of the Vocational Work Experience Program and the General Work Experience Program, and (3) a listing of program goals and expectancies, student terminal performance objectives, and teacher/coordinator facilitating objectives. The teacher/coordinator objectives are designed to provide a performance framework which defines the teacher/coordinator's tasks in managing the programs and in assisting students to reach the terminal objectives. Objectives have been included to cover administrative, legal, career station, counseling, and related learning activities. The teacher/coordinator and student objectives are arranged into four 9-week time frames to facilitate the collection of evaluation data at the same time as the quarterly student grades are issued.

Gore, George J. "Co-op Versus Non Co-op Revisited." Journal of Cooperative Education, November 1972, 9, 23-32.

Gore, George J. "While on the Subject of Cooperative Education." Journal of Cooperative Education, November 1972, 9, 33-47.

Previous studies of cooperative education programs graduates have shown that they typically receive higher starting salaries than their non-coop counterparts and that this initial monetary differential is reduced with time because the advantages of coop education are eventually overcome by the advantages of overall experience. The results of this study of coop and non-coop graduates of the College of Business Administration at the University of Cincinnati contradict both of these standard findings.

Information was gathered from those members of the graduating classes of 1964-69 who had majored in secretarial practice, economics, accounting, finance, management, marketing, and industrial management. The coop and non-coop graduates were considered comparable in that participation in the five-year coop program as opposed to the four-year academic program in any of these majors was optional and the course of study was otherwise the same. Questionnaires were sent to the 1,923 graduates for whom mailing addresses were available. Of the 926 questionnaires returned, 398 (228 coop and 170 non-coop) were considered usable after rejecting those received from persons who had entered into military service either immediately or shortly after graduation, those who had obtained graduate degrees, and those who had been sent questionnaires in error.

Results indicate that coop graduates do not have higher starting salaries than non-coop graduates and that the gap between the salaries earned by the coop and non-coop graduates increases with time in favor of the coop graduates. Secondary findings indicate that: (1) those who majored in industrial management and accounting received consistently higher salaries; (2) those who were graduated with the highest grade point averages received the highest salaries; (3) those who had held the largest number of jobs since graduation tended to have the lowest starting salaries and the highest present salaries; and (4) coop graduates who were employed by their coop employers after graduation tended to receive higher starting salaries than those coop graduates who were employed elsewhere, but this gap narrows with time.

Hayes, Glenn E. "Work Experience Education Programs in California: Status and Appraisal." Ph.D. Dissertation, UCLA, 1971.

The purpose of the study was: (1) to determine the current status of work experience education programs in California schools, and (2) to assess program effectiveness within the parameters of a descriptive study.

To meet the objectives of the study the following data were gathered by the use of a survey instrument: (appended) (1) program location; (2) duties and qualifications of staff personnel; (3) characteristics of work stations; and (4) advisory committee features. Subsequently, the data were presented in a descriptive format. Some analyses were done to attempt to determine the degree to which objectives of work experience education were being reached, and the degree of difficulty experienced in operating work experience programs.

The questionnaire was completed by a total of 464 principals in high schools; 130 principals in continuation schools; and 65 deans of instruction at junior colleges.

Among the major findings were: (1) Generally, the objectives of the work experience education are being met; (2) Most work experience programs are located in schools in urban communities; (3) A significantly greater percentage of work experience programs was found in office occupations, distributive education, and industrial-trade occupations than there was found in health occupations, home economics, technical education, and agricultural occupations; and (4) Apparently all levels of programs experienced difficulty in obtaining sufficient funding and suitable work stations.

Hu, Teh-wei; Lee, Maw Lin; and Stromsdorfer, Ernst W. "Economic Returns to Vocational and Comprehensive High School Graduates," Journal of Human Resources, Winter 1971, 4, 25-50.

This study compares the costs of vocational and comprehensive secondary education and the labor market performances of graduates of these two types of high schools who did not attend college. The measurements of the labor market performances are in terms of earnings and employment. The data were obtained from the responses to 2,767 mail questionnaires sent in 1966 and 1967 to graduates of high schools in three major cities (unnamed). Multiple regression analysis is used to measure the net effect of curriculum on the labor market performances for the two types of graduates. The analysis covers six years of the respondents' labor market experiences. Based on this sample the authors conclude that the monetary returns of vocational-technical graduates are higher than those of comprehensive graduates.

Seven independent variables are conceptually relevant in the model: city of graduation, type of school, sex, IQ, race, marital status, and father's education. Except for IQ and father's education, each of these variables is expressed in terms of dummy variables.

The study ignores all noneconomic costs and benefits of the two types of secondary education. However, the authors recognize that these noneconomic factors are important in any analysis of the total import of education.

Kaufman, Jacob J., and Lewis, Morgan V. The High School Diploma: Credential for Employment? Final Report. Unpublished paper, Pennsylvania State University, University Park, Pa., 1972.

This study had two main objectives: (1) to test the hypothesis that high school dropouts are discriminated against not because they know less, or are less able to do a job, but only because they lack the basic credential of a high school diploma; and (2) to determine the relative value of general education compared to specific skills training. To achieve these objectives, the progress of high school dropouts who participated in two experimental programs-- one offering courses leading to a high school diploma and the other offering skill training in specific occupational areas-- was followed for 33 months after their completion of either program. Their progress was compared to that of various other groups: (1) dropouts who received no additional education or training, (2) regular high school graduates of the vocational curriculum (3) regular high school graduates of the general curriculum, and (4) those who withdrew fron either experimental program. All groups were matched according to race age, sex, curriculum, and IQ. The employment experiences and characteristics of these groups were evaluated via two sets of interviews. On the basis of the findings, the major hypothesis was rejected; neither the diploma nor the completion of a skill training course significantly increased the employability of the dropouts who served as subjects in this study. Results also indicate that neither the general education nor skill training is superior. It is concluded that it is the social and economic tendencies of those who dropout, not their lack of a diploma, that limits the employment opportunities of dropouts. It is recommended that one of the most preferable new styles of education would be an emphasis on career exploration beginning in the elementary school. It is also recommended that no training institution can guarantee its graduates placement in a job related to their training. The interview instruments and a bibliography are appended.

Kaufman, Jacob J. and Lewis, Morgan V. The Potential of Vocational Education: Observations and Conclusions Based on a Study of Three Selected Cities in Pennsylvania. University Park, Pa.: Institute for Research on Human Resources, Pennsylvania State University, 1968. (ED 023 902)

An in-depth study was conducted in three cities in Pennsylvania in order to make recommendations for the improvement of vocational education in the Commonwealth. Research findings indicate the following: (1) although the degree to which vocational education has penetrated the school enrollment in the three cities appears high at first glance (30%), most of the enrollment is accounted for by office occupation programs (when these students are excluded, the total vocational program enrollment falls to 7%); (2) the kinds of programs offered do not always correspond to the demands of the local labor markets; (3) existing vocational programs are accomplishing their goals; (4) student curriculum choice is determined more by family circumstances and IQ than by individual interests; (5) about one-third of the male graduates of area vocational schools had felt "looked down on" because of the courses they took; (6) the vocational plans of females are culturally limited, and the female graduates had placidly accepted these limitations; (7) many vocational program graduates had discussed neither course choices nor job plans with school counselors; (8) compared to graduates of other curricula, vocational program graduates considered themselves better prepared for their jobs, had greater employment stability, received more rapid salary increases, and received higher average monthly earnings; and (9) the additional earnings of vocational program graduates justify the additional costs of their education. On the basis of these findings, plus those of other studies, the authors recommend that vocational education should not just be expanded along traditional lines. Instead, it should be broadened to include innovative programs aimed at making education relevant to those students who presently drift through the typical general curriculum. This broadened concept of vocational education should emphasize positive orientations to work and responsible work habits and should encourage individuals to explore their own interests by acquainting them with the nature of various kinds of occupations and by teaching them fundamental, rather than specialized, work skills. It would also include vocational guidance beginning in the elementary school and attempts to make students who attend area vocational schools feel fully accepted in their home schools.

Kimmel, Robert B. "The Short Range Opportunity Cost At Selected Institutions for Male Students Who Successfully Complete A Five-Year Cooperative Educational Degree Program." Journal of Cooperative Education, November 1972, 9, 68-74.

Academic programs are traditionally designed to facilitate the satisfactory completion of a degree program in four years, whereas cooperative students because of alternate work and academic terms, require five years. This study attempts to determine whether the short range opportunity cost justifies the additional year required under cooperative education.

The study utilizes cooperative education data from Auburn University, Virginia Polytechnic Institute, and the College Placement Council. Auburn and Virginia Polytechnic Institute were selected because they (1) have comprehensive coop programs in business and engineering and (2) prepare and distribute pay schedules.

Data is compared relating to students in the accounting, general business, and engineering field.

In order to compute the opportunity cost, it was necessary to determine the following:

I. For Regular Students
    a. Summer earning while in school
    b. Salary immediately following graduation (by curriculum)
    c. Salary one year following graduation (by curriculum)

II. For Cooperative Education Students
    a. Earnings during work quarters
    b. Salary immediately following graduation (by curriculum)

Based on earnings data, the opportunity cost in the short run does not appear to support participation in cooperative education at Auburn University or Virginia Polytechnic Institute. During college the noncooperative education student earns more money during three summer employment periods than the cooperative education student earns during the seven quarter work periods. Also, one year after graduation, the noncooperative education student is earning a higher salary than that received by the cooperative education student as the beginning salary after graduation.

Schill, William John. Concurrent Work-Education (Programs in the 50 States 1965-66), Initial Draft. Champaign, Ill.: Illinois University, Work-Education Research Center, 1966. (ED 021 049)

In order to assess the conduct or status of concurrent work-education programs (work-study and coop education) throughout the United States, data were solicited at the end of the 1965-66 school year from offices of education in each of the 50 states via personal visits and from a random sample of individual school districts via mailed questionnaires. Of 1836 questionnaires sent to public high schools, junior colleges, and postsecondary vocational institutions, 1535 (83.6%) were returned. Of these 1535 responses, 1216 (79%) agreed with the data collected from state offices.

Research findings indicate that, in 1965-66: (1) work-study programs were in operation at 2509 of the 18,000 U.S. high schools offering grades 10,11, and 12 and at 195 postsecondary institutions; (2) 4,800 coop programs were in operation at 3,300 institutions (two-thirds of the institutions with coop programs having only one offering); (3) 2,451 schools with coop programs did not have work-study programs and 1,823 schools with work-study programs did not have coop programs; (4) 44,817 high school students and 7,418 postsecondary students were enrolled in work-study programs, while 117,035 postsecondary students and 4,243 postsecondary students were enrolled in coop programs; (5) only one-third of the enrollment in all coop programs was in schools which also had work-study programs; (6) large schools in large cities were the most likely to have concurrent work-education programs; (7) those states with the largest amounts of funds available for education were the most likely to have work-study programs (implying that the work-study program probably was not alleviating the problems of the poverty-stricken); (8) the greatest number of students and concurrent work-education programs in every state was in the field of distributive education, whereas the smallest number of students and programs in every state was in the fields of agriculture education and home economics; (9) the 50 states spent in excess of $757 million on vocational education, of which approximately $224 million came from the federal government; (10) of the money that came from the federal government, approximately $20 million (9%) was spent on work-study; and (11) in relation to the total expenditures for vocational education, approximately 2.7% went to work-study.

Venables, Ethel. "The Human Costs of Part-Time Day Release." Higher Education, August 1972, 1, 261-285.

Four cohorts of "unqualified" school leavers, starting in part-time day release engineering courses in local technical colleges between 1950 and 1960 were the subjects of four studies during their first three years at college.

A questionnaire sent out to them in 1966 resulted in a 35 percent (714) response rate. The survey covered their achievement at college, their careers in industry, and the relationship between the two. Response rates were biased in favor of the more successful in the early years at college.

This paper is concerned with the 110 respondents (17 percent) who had obtained a Higher National Certificate by 1966. The percentages varied with time from about 40 percent for those starting in 1950 down to 9 percent for the 1960 cohort.

The evidence presented suggests that despite an inbuilt failure rate on the part-time National Certificate Courses, some students persisted against the odds for as long as 12 years in order to achieve professional qualifications by this route. This heavy price in terms of human endeavor is contrasted with the cost-benefit analyses of the economists which show that production of qualified manpower by the HNC route provided higher returns to society than full-time university courses.

In answer to the question about their plans for the education of their own children, 59% of all respondents and 77% of those who had achieved the higher qualification, wanted longer schooling, university degree, and other full-time courses. The author concludes that it seems unlikely that those who have themselves struggled for years along the "cheap," "hard way," will readily accept economic arguments for the continuation of these conditions for the next generation.

Wilson, James W. "Study of Cooperative Education." School and Society, 1960, 88, 399-400.

This is a report of a 2-year study of coop education's educational effectiveness in higher education funded by the Fund for the Advancement of Education. Questionnaire, interview, and test data were obtained from 5,300 students and graduates of 5 classes from 1939 to 1959 from 22 coop and 16 non-coop college programs, including liberal arts, engineering, and business administration. In addition, relevant information was collected from teachers and employers of coop students, and from institutional coordinators of coop programs.

Study chairman, R.W. Tyler, reports that his committee and staff have concluded from the analysis of the data and from a consideration of its results that coop education is educationally valuable because it: (1) relates theory and practice so that students find more meaning in their studies; (2) contributes to a greater sense of responsibility, a greater reliance on their own judgment and a development of maturity; (3) develops greater skills in human relations through constructive relations with co-workers of various backgrounds; (4) orients college students to the world of work; (5) attracts to higher education those able young people who would not otherwise attend college; (6) helps faculty keep in touch with business, industry, and other professions; and (7) permits more efficient utilization of college facilities.

The data were examined for possible disadvantages in coop education; but contrary to some objections, experience showed no confusion resulting from rotation between college and work, no problem of retention of academic work while on the job and no difference between coops' and non-coops' participation in extracurricular activities. Based on the study's findings, the committee made the following recommendations: (1) the use of imagination in developing programs that are appropriate to the conditions and purposes of the individual college; (2) the involvement of faculty in planning the program, particularly as it relates to their own teaching; (3) attention to a close and responsible relationship between the employer and the college in planning work experiences, in selecting students qualified to undertake job assignments and in maintaining a relatively stable level of coop employment through the fluctuations of the business cycle; (4) the extension of coop education to other occupational fields including more liberal arts institutions and more experimental coop programs for women and for graduate students; and (5) more attention to informing various groups about the nature and values of coop education, e.g., to college administrators and faculties, to employers, to secondary school personnel, and to high school and college youth and their parents.

Wilson, J. W., and Lyons, E. H. Work-Study College Programs: Appraisal and Report of the Study of Cooperative Education. New York: Harper, 1961.

This is the report of the first major evaluative study of coop education. It major purposes were: (1) to determine the extent to which the positive and negative claims made about coop education are true or false; (2) to determine if there are reliable differences in the intellectual, personal, and social status characteristics of students selecting coop versus non-coop institutions; and (3) to determine if there are reliable differences in the dominant environmental characteristics which impinge upon students in coop versus non-coop institutions. A total of 22 coop and 16 non-coop programs at 27 baccalaureate-degree-granting institutions were investigated; all the coop institutions had offered coop programs since 1935. Programs in liberal arts, engineering, and business were studied. Data were obtained from questionnaires sent to selected faculty members, administrators, and employers; interviews with administrators and employers, a series of questionnaires administered to students, and follow-up studies of the graduates from coop programs of the classes of 1958, 1955, 1950, and 1939.

Results indicate that: (1) coop students do not differ from non-coop students in academic potential; (2) coop experience provides opportunities for students to see the relevance of theory to practice and does not destroy student concern for academic learning; (3) coop education contributes to society by attracting able students who otherwise would not have considered furthering their education (more coop than non-coop students come from low-income families); (4) business and industry are enthusiastic about coop education and recommend its development in other institutions; (5) coop students participate in campus activities as much as non-coop students; (6) students and graduates view the five years of college required by coop education as no handicap in getting started in a career and believe that it contributes materially to their career preparation; (7) shifting attention from classwork to jobs and then back again is no educational problem; (8) the coop plan makes facility utilization more efficient (the degree of this increased efficiency varies with the specific pattern of coop education adopted); and (9) students and graduates claimed that coop education had satisfied their hopes and expectations. Tabulated results and a bibliography are included.

EVALUATIVE STUDIES: METHOD AND THEORY

(Section II)

Bateman, Worth. "An Application of Cost-Benefit Analysis to the Work-Experience Program." American Economic Review, May 1967, 57, 80-90.

The purpose of this paper is to: (1) develop an analytical framework for evaluating the work-experience component of the Work-Experience and Training Program; and (2) estimate its potential effectiveness in improving the capability for self-support.

The Work Experience and Training Program is one of many federally supported programs which aims to reduce poverty and dependency by raising individual capabilities for self-support. The program is focused on potentially employable persons with little formal education who are currently unemployed and who lack the means to support themselves and a large number of dependents. At present, little is known about the effectiveness of the program in raising the earnings of the group it serves.

The benefits of the program can be divided into two parts. First, there are the short-run or immediate benefits of a work-relief program--in part, the output produced by people working who would otherwise be unemployed. Second, there are the long-run benefits of reduced dependency and improved potential for economic independence and self-support.

The estimate of costs made for this analysis is the additional cost for an individual participant which is increased by the government.

A "break-even" analysis is then performed. The ratio of the incremental costs and the estimated present value of future earnings is an indication of how much earnings would have to rise for the program to break even.

Results indicate that even when incremental public assistance costs are counted, only a small percentage of increase in future earnings would be necessary to make the problem break even.

Bateman cautions, however, that despite data which suggest large potential payoff of the program, the fragmentary program information which is available permits only rough estimates.

Cohn, Elchanan. The Economics of Education. Lexington, Mass.: D.C. Heath, 1972.

The book has four main purposes: (1) to critically survey the literature, especially the major works and issues of the last decade; (2) to present as much factual information as space permits concerning the major aspects of the economics of education; (3) to communicate to noneconomists, especially school administrators and decision making personnel in the various hierarchies of government, the potential of the utilization of economic tools for improved decision making in education; and (4) to present the results of several of the author's studies on educational costs, educational productivity, and compensation of teachers.

The main topics that are discussed are the economic value of education, resource allocation in education, educational finance, and educational planning. Also, there is a detailed treatment of the methodology of benefit-cost analysis.

A brief summary of main topics follows. Then, Cohn concludes the section on education and human capital by pointing out that the current ideas in the economy of education are not new; rather, it is the refinement of tools, data, and concepts of human capital that have revolutionized modern economic thought.

The studies surveyed on returns to investment in education indicate that such returns are generally quite high. Exceptions are noted in regard to graduate eduation in the United States and a number of educational investments in Israel.

The section on financing of education considers the rationale of government involvement in education. For each reason discussed, a corresponding finance scheme is presented. For example, when external effects exist some sort of subsidization is called for.

The final section, concerning educational planning, argues that at least some planning is desirable because there are various imperfections in the economic system (lack of a pricing system in education, for example) which prevent the educational system from reaching the point of maximum efficiency without some external interference.

Goff, Maurice L. "Survey of Present Methods of Follow-up of Public Post Secondary School Graduates in Cooperative and Preparatory Vocational Programs and Development of a Follow-up Procedure." Ed.D. Thesis, Wyoming University, 1968. (ED 028 339)

This study was made to assess follow-up procedures for gathering information from graduates of public post secondary vocational and technical programs, and to develop an effective procedure involving a minimum of time and money. The procedure developed in this study was designed to supply data requested annually by the USOE. Fifty state directors provided names of 168 local administrators using systematic follow-ups, and gave suggestions for developing a procedure. Findings included the following: (1) follow-ups were almost exclusively conducted at the local level; (2) of 134 local administrator respondents named by state directors as using systematic follow-ups, 15.4% had no graduates; (3) the most common method (used by 30.5% of the local administrators) was to get data from students before graduation; (4) six state directors reported no systematic or reliable local follow-ups; (5) a procedure, usable with either large or small groups, which could provide accurate information was used to some extent by 51.5% of the administrators. The study revealed some neglect in effective evaluation and ascertained objective limitations in constructing follow-up devices.

Hamermesh, Daniel S. Economic Aspects of Manpower Training Programs: Theory and Policy. Lexington, Mass.: D.C. Heath & Co., 1971.

The intention of this book is to use economic analysis to discuss the possible roles and effects of government intervention in the area of manpower training. The approach uses normative considerations of what constitutes appropriate and efficient intervention into private decision making. The approach is much broader than simple cost-benefit analysis and is not limited to any individual program. Four of the major goals for training, as stated by government, are considered.

Chapter 2 discusses the displacement of "nonsubsidized" workers by "subsidized" workers. One can use a model to simulate the conditions under which a subsidy for training disadvantaged workers would lead to more or less displacement.

Chapter 3 considers conditions in a depressed area under which a market-wide wage subsidy, one paid throughout the worker's tenure in the firm, would create more employment than would a market-wide training subsidy, one paid at the time at which the worker was employed. The relative merits of these alternative subsidies are analyzed under the fairly general assumptions about the nature of training in the subsidized firms in both the short and long runs.

The main purpose of chapter 4 is to construct a multisector macro-economic model of wages and employment. Government training subsidies affect the time paths of these endogenous variables through the elasticities of labor supply to the sectors which make up the model. In the simulations, we examine the most efficient way of spending a fixed sum of money on training labor.

Chapter 5 discusses the role of manpower training programs as they apply particularly to urban areas. After analyzing the aspects of training which are quite divorced from the demographic character of an urban area and affect instead its spatial aspects, the chapter determines what characteristics influence patterns of voluntary mobility within a metropolitan area and discovers which areas have high or low mobility. This information should be useful in pinpointing cities where manpower programs should be concentrated. The relation between training and transportation in determining the labor supply in an area is also discussed.

Chapter 6 discusses possible conflicts among the goals and discusses whether all of them can be achieved simultaneously.

Harris, Marshall A. "A Benefit-Cost Analysis of Selected Vocational Programs in Florida." Ph.D. Dissertation, Florida State University, 1972.

The purposes of this study were fourfold: (1) it developed a methodology for conducting a statewide benefit-cost analysis of vocational education programs in Florida; (2) it examined, compared, and analyzed the public and private (individual) benefit and cost aspects of four vocational education programs in Florida; (3) it compared and analyzed the public and private benefit and cost aspects of students who attended vocational education programs while enrolled in day high school (secondary students) and students not enrolled in day high school (nonsecondary students); and (4) it generated formulae which resulted in the development of a model for predicting investment returns of vocational education programs.

Incorporating existing program cost data collected by means of student follow-up questionnaires, this study consisted of four principal phases.

In the first phase four vocational education programs--auto mechanics, air conditioning and refrigeration, practical nursing, and cosmetology--located at area vocational centers in four designed geographical regions of Florida were selected.

In the second phase, methodologies for determining program benefits, costs, and benefit-cost ratios were developed. Criteria and algorithms for measuring benefits relative to labor market performance were developed. Costs were determined by algorithms based upon a student's length of time in attendance in the program. Benefits were then linked to costs in the form of discounted benefit-cost ratios. The discounted benefit-cost ratio was a number which indicated the percentage rate of return on investment in vocational education programs.

In the third phase historical benefit-cost profiles for each of the four vocational programs, and for secondary and non-secondary students in all programs were constructed. The benefit-cost profiles were then analyzed and compared between vocational education programs, and between secondary and non-secondary students.

In the fourth phase the procedures and data used in constructing the historical benefit-cost profiles were incorporated into a benefit-cost planning model which enables projection of benefit-cost ratios into the future.

The more cogent findings of this study were as follows: (1) On both public and private investments, the air conditioning and refrigeration program had statistically significant higher rates of return than did either the auto mechanics, practical nursing or cosmetology programs. Among the latter three programs, however, there were no significant differences in rates of return on investment; (2) There were statistically significant differences in rates of return on investment between secondary and non-secondary students. On both public and private investments, non-secondary students had higher rates of return than did secondary students; (3) On the average, student costs of vocational education were greater than public costs. Student costs represented about 60 percent of the total cost of education.

The benefit-cost profiles which were constructed indicated that public and private rates of return from investment in each of the four vocational education programs were positive and significant. Therefore, it was concluded that investment in these programs was economically profitable both to society (public) and to the individual (private).

Hindrichs, Harley and Taylor, Graeme, M. Program Budgeting and Benefit-Cost Analysis: Cases, Texts, and Readings. Pacific Palisades, California: Goodyear Publishing Co., 1969.

This book is organized so as to present a logical sequence for understanding benefit-cost analysis. The introduction states the rationale for cost-benefit analysis, what it is and what it is not. Then a comprehensive primer of cost-benefit theory is outlined to alert the reader to the broader conceptual framework of economic theory: ends, means, rules of the game, externalities, and measurement problems compounded by differences in time, and the risks and uncertainties of such ends and means. Following this, chapters by several leading economists and policy makers deal with the theory, readings, and cases studies and present information on the concept of a program budget, the design of a program structure, determining objectives, criteria, and output measures.

At the core rests an extensive treatment of program analysis itself. This includes capital budgeting, model-building, assumptions and constraints, decision rules, estimating market demand in the public sector, externalities and incommensurables, multiple objectives, time, risk, and uncertainty, systems analysis, problem formulation, price incentives, and comprehensive program evaluation. Appendices provide present value tables and a bibliography of articles, books, and cases.

Levitan, Sar A., and Siegel, Irving H. (Eds.). *Dimensions of Manpower Policy: Programs and Research; A Volume Commemorating the Twentieth Anniversary of the W. E. Upjohn Institute for Employment Research*. Baltimore, Maryland: The Johns Hopkins Press, 1966.

This commemorative volume contains 17 papers by 18 authors. It is intended to reflect the character, scope, and variety of the work conducted by the W. E. Upjohn Institute for Employment Research, a unique organization focusing on national and local employment and manpower problems.

The first section, entitled "Manpower and Policy," includes an insight into increasingly specialized structure of public institutions for the improvement of human resources and welfare; a discussion of the orientation of U.S. policy (1961-65) toward welfare rather than to human-resources development; a review of the operations and policy issues under each major component of the anti-poverty program initiated by the Economic Opportunity Act, together with a discussion of the basic inadequacies of this program; and an examination of the confrontation of new manpower and poverty policies with established political institutions.

The second section, "Income Maintenance for the Unemployed," contains a discussion of the development of the U.S. Employment Service as a central institution for the implementation of national manpower policy and condemnations of the federalization of public employment offices, the compulsory listing of vacancies, and the complete physical separation of the unemployment insurance and job placement functions; a contention that further investigation of benefit adequacy, benefit duration, and qualification criteria is necessary before the public unemployment insurance system can be improved; a consideration of the differences in the adequacy of unemployment insurance reserves of the various states in light of tax rates, amount and duration of benefits, industry mix, vulnerability to cyclical declines, and pending federal legislation; a review of the salient characteristics of claimants aided under the 1961-62 federal program of temporary extended unemployment compensation benefits; and an examination of the variety and roles of private programs that help to maintain the incomes of workers forced into idleness.

The third section, "Community Improvement," consists of a review of existing and needed educational and vocational programs and facilities in Kalamazoo County, Michigan, and a suggestion for the establishment of an intermediary organization (comprised of school, industry, and community representatives) that might offer work experiences for school youths bound directly for employment; a discussion of the importance of citizen advisory groups in improving vocational and technical education programs; a case study of the adaptation of vocational education programs in Erie County, Pennsylvania, to changes in market demand and industrial location; and a description of a venture in which the Institute helped a community improve its approach to problems of unemployment and job development.

The final section, "Information Needs and Tools," includes a discussion of the various factors that will influence manpower research in the future; an examination of emerging developments in the federal statistical system program budgeting and their implications for manpower research; a discussion of the need for an interdisciplinary approach to the study of manpower; and an assertion that the increasingly powerful role played by the federal government in economic affairs places new strains on the limited base of productivity information.

Mishan, E. J. "A Proposed Normalization Procedure for Public Investment
Criteria " The Economic Journal, December 1967, 77, 777-796.

The development of criteria for public investment over the years seems to have favored comparison of the present discounted values of the stream of return rather than comparison based on the internal rate of return when admitting and ranking public projects. This gathering weight of opinion has been influenced by two considerations. First, the present discounted value and the internal rate of return methods lead, in general, to different rankings of a set of investment streams. Since the present discounted value method appears unassailable, in cases of discrepancy, the internal rate of return method is rejected. Second, the present discounted value method yields a unique magnitude with respect to the discount rate adopted, whereas more than one positive internal rate of return may be found to correspond to a given investment stream.

The aim of the paper, then, is to make explicit a normalization procedure setting forth the conditions under which, alone, comparisons of investment streams by either criterion have economic significance. The resulting normalized investment criteria, whether based on internal rate of return or on present discounted value (benefit-cost ratio, or benefit-less-cost method), invariably produce the same ranking for any given set of investment projects.

Mishan demonstrates his procedure both in a theoretical manner and with a concrete numerical example. In the appendix to his article, he uses the normalization procedure to choose a set of investment projects subject to a budget constraint.

Rasmussen, Dale Bruce. "Determinants of Rates of Return to Investment in On-the-Job Training." Ph.D. Thesis, Southern Methodist University, 1969. (ED 036 698)

This study evaluates public investment in on-the-job training (OJT) and tries to identify systematic determinants of the profitability of this investment. Profiles of age and earnings by occupation are estimated for the South and non-South regions and for whites and non-whites, from data in the one-in-1,000 census sample and are then adjusted to the regional level using wage survey indexes. Concepts of profitability reflect three kinds of assumptions: (1) trainees (government expenditures for allowances to trainees) are not a cost; (2) transfers are a cost; (3) increases in tax revenue are the sole benefit derived from OJT. The methodology of the study is an aggregate approach to evaluating investment by utilizing detailed information describing individuals, which is adopted in order to examine cross-sectional regional data. Once rates of return are computed, the hypothesis that "rates of return are positively correlated with dynamic growing regions characterized by structural unemployment" is tested. Relative increase in skilled wages, a measure of structural unemployment has a positive effect on the rate of return. Heavy concentration of manufacturing has a negative effect as a determinant of the rate of return. Another determinant, the rate of population growth in an area has a strong positive effect. The regional model indicates that the higher the percentage of non-white trainees, the higher the expected rate of return to investment in OJT. Based on the results achieved by testing the regional model, the success of OJT is predictable given the values of the determinants of the rate of return. Thus the study not only provides regional patterns of "profitability" for these public investments but provides some information about factors contributing to regional differences.

Reinhart, Bruce and Blomgren, Glen H. Cost Benefit Analysis--Trade and Technical Education, Final Report. Sacramento, Calif.: California State Dept. of Education; Bureau of Industrial Education, 1969. (ED 034 056)

This report contains introductory material on cost-benefit analysis, reviews of cost-benefit studies, a discussion of the basic concepts of cost-benefit analysis, and a discussion of two possible approaches to cost-benefit analysis of vocational education: (1) vocational versus academic education, which has been used in studies completed to date, and (2) vocational versus vocational education, which includes on-the-job training costs for graduates of the various curricula. The report concludes: (1) The typical study thus far has been limited in scope; an implicit problem has been that the studies consider vocational and academic education as alternate means to the same ends, when they are different means to different ends. (2) The vocational versus vocational education approach would render unlike curricula comparable because vocational education is the goal for which several alternatives are being tested. These alternatives include high school vocational education curriculum, academic high school curriculum with on-the-job training (OJT), general high school education with OJT, industrial arts high school curriculum with OJT, coop work experience programs, Job Corps training, vocational education junior college curriculum, and academic junior college with OJT. (3) Cost-benefit analysis is a useful decision tool for allocating funds, but it assesses only the economic efficiency of a program. A plan for a possible cost-benefit analysis study of vocational education is presented in the appendix.

Rosen, Sherwin. "Learning and Experience in the Labor Market " Journal of Human Resources, Summer 1972, 7, 326-342.

This paper defines the role of the labor market in the transmission and acquisition of skills and knowledge, based on the hypothesis that individuals learn from their working experiences. The problem is cast in terms of an implicit market for learning opportunities that is dual to the market for jobs. Optimum choices in this setting have implications for the evaluation of earnings and occupational patterns over the worker's lifetime and provide the basis for a theory of occupational mobility. Several implications of the model, including those for occupational discrimination against minorities are also discussed.

The paper examines lifetime income and job choice based on the construct of a market for learning opportunities. Different work opportunities are shown to offer alternative opportunities to learn and accumulate valuable skills as a byproduct of work experience. Given market prices, then, maximization of lifetime wealth is a problem of optimum capital accumulation and implies choice of an optimum progression of work activities over working life. This simultaneously determines both the earnings and the lifetime occupational patterns of workers.

Sanders, Lester Earl."A Comparison of Two Methods of Preparing Youth for Employment: Cooperative Occupational Education Versus the Preparatory Vocational-Technical School." Ph.D. Dissertation, University of Missouri, 1967. (ED 050 226)

To analyze and compare the cooperative occupational education and vocational-technical school programs and graduates in the Springfield, Missouri, public schools, information forms were sent to: (1) 268 graduates of the coop occupational education programs and 417 graduates of the vocational-technical school for the years 1961-1965, (2) their parents, and (3) present and past employers. Some findings were: (1) Vocational-technical programs seemed to have greater impact in maintaining student interest and improving attitudes towards school, although both were able to do this.(2) Coop education graduates emphasized the development of desirable personal-social characteristics,and vocational-technical graduates emphasized job skills and related knowledge. (3) Transition from school to full-time employment is made more quickly and easily through coop education programs. (4) A majority of vocational-technical graduates took advantage of unsupervised work experience while in high school, although the job was not often related to the occupation for which they were trained. (5) After a period of adjustment, the vocational-technical graduates tended to return to the occupation for which they were trained in greater numbers, and (6) Coop education graduates tended to demonstrate more desirable personality traits, work habits, and a higher degree of occupational competency. Other results include: (7) Students in both programs tended to be similar with respect to intelligence, percentile rank, class rank and grade point average. (8) More opportunities for training of both sexes exist in part-time coop occupational education programs than in full-time vocational-technical programs. (9) Coop education students were often used to perform routine jobs and were often paid less than unsupervised part-time student help. (10) The cost of establishing a vocational-technical school program is greater than for coop education, but they support and supplement each other.

Senier, John and Enderlein, Thomas E. A Supply-Demand Model for Vocational-Education Planners: Post-Secondary Instructional Program/ Occupational Matrix Phase 2. Report No. 1. Vocational-Technical Research Report. University Park, Pa.: Dept. of Vocational Education, Pennsylvania State University, 1973. (ED 078 192)

As part of a larger study to develop a Supply/Demand Model for Vocational Education Planners, this phase of the study was concerned with devising effective methods of providing program planners and administrators with current information relating to graduates and what they do upon completion of their programs. Using basic data obtained from questionnaire responses from 4,713 (63% of total) 1971 graduates of Pennsylvania's public community colleges, commonwealth campuses of Pennsylvania State University, and private and proprietary schools, instructional program/occupation matrices were developed. Included in the matrices is information on graduates who: (1) did not look for work after completing their training, (2) continued their education full-time, (3) continued their education part-time, (4) entered the military, (5) did not enter the labor force for other reasons, and (6) entered the labor force. Data analysis includes a comparison of the 3 types of occupational training institutions: (1) private proprietary school graduates are almost entirely trained for occupations, while community colleges have 50% of their students in occupational programs and state universities have a higher percentage of occupational students transferring to baccalaureate degree programs than the other two; (2) the rate of unemployment experienced by state university graduates is the lowest (6.1% median), while community college graduates had only a 1% higher rate and private proprietary school graduates had an unemployment rate almost double that of the other two. The least successful programs in terms of graduates being able to get related jobs were: Forestry Technology, Business Administration, Apparel and Accessories, and Marketing/Retail/Finance, which suggests that these programs may not plan on the basis of available job market information. It was also suggested that postsecondary institutions develop better job placement services.

Smith, Ralph E. "The Opportunity Cost of Participating in a Training Program." Journal of Human Resources, February 1971, 6, 510-519.

The paper presents an analytical model which may be used to estimate the earnings which trainees in a manpower program would have received during the training period had they not chosen the training. The model is applied to the estimation of costs associated with institutional training under the Manpower Development and Training Act.

The estimation of the foregone earnings of trainees is the weakest component of most economic analyses of manpower programs, Smith asserts. Many studies simply assume that foregone earnings are quite small since the trainees usually are unemployed upon enrollment. Estimates presented here, which allow for probable changes in the trainees' labor force status over the period of training, indicate that foregone earnings probably constitute the largest cost associated with such programs. This cost is borne by the trainees and may well exceed the training allowance which they receive in lieu of earnings while in the program.

The model has at its base the idea that the key element in estimating a trainees' opportunity costs is the proportion of the training period during which he would have been employed had he not enrolled in the program. In lieu of a control group, this is estimated from the employment rates observed for the demographic groups from which they were drawn, adjusted for (1) their level of education, (2) their employment handicaps, and (3) their status as employed or unemployed at the time of enrollment.

The model is then applied to an MDTA institutional training program. The magnitude of the opportunity costs estimated here suggests that such costs to the trainees is sufficiently large to be a very important consideration.

The average foregone earnings of the MDTA institutional trainees is estimated to have been $1,280, considerably greater than generally assumed.

Woltman, Harry R., and Walton, William W. Evaluations of the War on Poverty: The Feasibility of Benefit-Cost Analysis of Manpower Programs. Washington, D.C.: General Accounting Office, 1969.
(ED 057 226)

To investigate ~~the fea~~sibility of applying benefit-cost analysis to poverty programs, participants in Job Corps and Neighborhood Youth Corps Out-of-School programs were surveyed. Program participants were compared with control groups of accepted applicants who did not show up for enrollment. Program effects were measured in terms of economic and social improvement, and benefits were extrapolated into a lifetime benefit stream. Although high benefit-cost ratios were found for NYC and extremely low ratios were found for the Job Corps, neither can be shown to be statistically valid. Improvements in employment were not demonstrated for either program, although there may have been a slight improvement in wages for those who were working. Projecting these uncertain effects into lifetime benefits increases the uncertainty. A standard evaluation format and procedure for manpower programs is recommended.

GUIDELINES

(Section II)

Bodden, Wendell, et al. "How to Design a Cooperative Program." Manual prepared by the Special Affairs Committee of the Cooperative Education Association, February, 1971.

The Special Affairs Committee of the Cooperative Education Association (CEA), as part of its objective to assist the predominantly black colleges in developing cooperative education programs, has prepared this manual. The manual is being used in workshops that CEA provides for black colleges. The workshops outlined in the manual are divided into the following twelve areas: (1) What is Cooperative Education?--Implications for the Developing Black College; (2) Preliminary Steps in Designing a Coop Program; (3) Developing a Calendar for Cooperative Education; (4) Administrative Hang-Ups; (5) Mandatory and Optional Programs; (6) Centralization or De-Centralization; (7) The Coordinator and His Role; (8) Policy, Rules, and Regulations; (9) The Budget; (10a) Form Design; (10b) Promotional Literature; (11) Program Design and Philosophy; and (12) Implementation of a Coop Program.

Also included in the manual is a bibliography of books and articles pertaining to cooperative education. In addition, if necessary, consulting services are provided by the Special Affairs Committee to help institutions in the development of coop programs.

In the first Workshop, advantages and disadvantages of a cooperative education program are discussed. Some advantages to the student include: (1) The classroom experience will become more meaningful to the student by having an opportunity to put into practice what he is learning in school; (2) By participating in a cooperative program, the student will receive occupational guidance which will provide him with an accurate and positive identification of professions. Thus misdirection of the student's energies will be avoided; (3) Students will not have to work and go to school at the same time. The chance of the students having a time-conflict between work and classroom study is therefore lessened; and (4) An opportunity for students to earn money to finance their education is an important factor in that the financial aspect, in many cases, determines whether they can or cannot enroll in college.

Advantages to the school include: (1) The establishment of a relationship with the cooperating organizations can result in a better rapport with the commercial community; (2) Organizations participating in the coop program often contribute to the school's fund-raising activities because they realize the advantages of participating in a coop program; (3) It is easier for the school to place graduates of the coop program because of their background of experience; and (4) Students on the coop program will not require financial assistance; therefore, the demands on the school's financial aids office is lessened.

Some disadvantages to the student are: (1) In many schools, coop programs are five years; therefore, the student's schooling is increased by one year; (2) Females find it more difficult to be placed in the business community than do males; and (3) Students have to budget their money to cover living and school expenses.

Disadvantages to the school include: (1) A cooperative program requires extensive planning; (2) Securing sufficient funding for the program is often difficult; and (3) Sometimes it is necessary to change the structure of the school to accommodate the program. For instance, offering additional classes to meet the needs of coop students often increases operating costs.

Brown, Robert L. Cooperative Education. Washington, DC.: AAJC, 1971.
(ED 053 712)

This publication presents guidelines for occupational coop education programs in community colleges. Various patterns include: (1) alternating full terms in school with full terms at work; (2) work experience paralleling enrollment in regular college classes; (3) one term on the job as an integral part of classroom training; and (4) working full-time while attending class part-time in order to update job skills.

A successful program depends on unified administrative leadership; typically, the program director reports to the Dean of Instruction, the Division/Department Chairman, or the Dean of Student Affairs. Staff duties include program development, counseling, placement, field supervision, evaluation, and record maintenance. The coop employer's responsibilities are to help plan the coop program and to employ, orient, supervise, and evaluate students. Committees of students, instructors, and community leaders should be established to help in planning, promoting, implementing, and advising the program.

Before it can be implemented, the program must be promoted and community support solicited. Also, the following policies and procedures must be formalized: grading and fee policies, a procedure to recognize student work experience either by noting it on the student's transcript or by granting a certificate of completion, and a procedure for student and program evaluation. New methods of instruction, recent changes in the labor force, new federal programs, and international involvement all have potential influence on the future direction of coop education. Benefits to students, employers, and the college are detailed; problems and possible solutions are discussed; and models of existing programs in merchandising management, the manufacturing industry, and retail management training are presented.

Brownlee, Roland H. A Selected Bibliography of References to Cooperative Education in Two-Year and Four-Year Colleges and Universities. Unpublished paper, 1974. (ED 095 952)

This bibliography of books and journal articles was designed to serve professionals entering the field of college-level coop education. The references cited do not pertain to coop education in vocational-technical schools or at the high school level. Furthermore, the emphasis is on business and liberal arts programs, as opposed to engineering and professional school programs. In addition to lists of references relating to coop education in the United States, a separate section devoted to "sandwich courses" in England is included. Special attention is given to articles appearing in the Journal of Cooperative Education and to the essays presented in The Handbook of Cooperative Education.

Burt, Samuel M., and Lessinger, Leon M. Volunteer Industry Involvement in Public Education. Lexington, Mass.: D.C.Heath & Co., 1970.

This book details methods of involving industry in education on a voluntary basis and discusses specific ways in which these methods can be (and are being) used. Chapter I indicates the scope of volunteer industry involvement and discusses the reasons for this involvement. It also discusses the constraints under which industry operates, the various methods of organizing education to benefit from industry's store of resources, and the need for state and national leadership to maximize cooperative efforts. Chapters II and III describe the cooperative work of existing volunteer industry organizations, some of which have been organized by the schools and some of which have been organized by industry itself. Chapter IV proposes that both education and industry should be blamed for the educational disabilities of the disadvantaged and strives to correct the false impressions held about industry by education and to highlight the performance competencies of students for which school can be held accountable. Chapter V analyzes the history and achievements of regional industry-education councils. Chapter VI stresses the fact that societal needs can no longer permit education to be solely a preserve for educators and provides illustrations and practical suggestions for forming educational partnerships. Chapter VII presents case studies of industry-education cooperation. Chapters VIII and IX describe the needed next steps for securing genuinely productive cooperative efforts between industry and education, including a method for establishing a new national leadership in the field of industry-education cooperation, which would include (1) the establishment of an industry-wide organization for encouraging industry-education cooperation from the industrial side; (2) the addition of staff in USOE to provide leadership and guidance to the educational sector; and (3) the development of a research and training Center for Studies in Industry-Education Cooperation.

Developing Work-Study Programs for Potential Dropouts: A Manual. Albany, N.Y.: State University of New York, Bureau of Guidance, 1965.

In 1962, the New York State Legislature passed a bill permitting school districts to establish School to Employment Programs (STEPs). STEP is designed to reduce the number of unemployed high school dropouts by improving attitudes toward school and work in a specialized program combining school and work experience. To participate, students must be at least 15 years old, must have been identified as potential dropouts, and must have parental permission. Work stations may be found with private employers or with tax-supported agencies; in the latter case, the student's stipend is provided by the school district. At least one school period each day must be devoted to orientation to school and work. Although this class is the only state classroom requirement for STEP participants, most attend school all morning and are employed in the afternoon. Besides the required orientation class, school sessions are often composed of special classes for STEP students (e.g., basic skills). This manual is designed as a resource guide for STEP teacher-coordinators. It describes the recommended characteristics and duties of the STEP teacher-coordinator, and discusses student selection, the development of in-class materials, the importance of faculty orientation and participation, the factors involved in student placement, the necessity of parental and community support, and evaluation procedures. It also includes guidelines for the content of the daily orientation session, suggestions for other in-school classes, a discussion of recommended teacher materials, and extensive bibliographies designed for the professional information of the teacher-coordinator. STEP regulations are appended.

Epstein, Jerome. Program Guide: A Guide for Development and Operation of a Secondary School Allied Health Career Program. Los Angeles, Calif.: California University, Division of Vocational Education, 1972.

The project described in this document was designed as an experiment in career education in the health field. The 3-year program offered students in three Los Angeles high schools and one Long Beach high school an introduction to health careers in the first year, work experience in the second, and coop or work-study education in the third. The program considers the needs of each student, with individualized teaching, self-instructional materials, and other aids. Each student starts at his own level of achievement and moves along at his own rate of speed. Progress is measured against individual performance rather than the class performance. Thus high achievers may move ahead without being hampered while low achievers are not threatened by further failure. In this guide, a brief history of the pilot and demonstration project is followed by the step-by-step procedures required to establish new programs. Included are documents, information sheets, and forms used in the project. The program design included evaluation of each of the three 1-year phases. This guide was written to provide assistance to other school districts in establishing similar health career programs.

Ferguson, Edward T. (ed.). A Selected and Annotated Bibliography Related to Cooperative and Project Methods in Distributive Education. Bibliographic Series No. 5. East Lansing, Michigan: Michigan State University, Department of Secondary Education, 1967. (ED 028 250)

The compilation of this annotated bibliography of selected materials was undertaken to provide a thorough review of the literature concerning the coop and project methods of instruction in the field of distributive education to be used in "A Pilot Program Comparing Cooperative and Project Methods of Teaching Distributive Education." The major portion of materials included in this annotated bibliography is mainly reviews of journal articles, although some books, theses, and dissertations were also reviewed from 1896 to 1967. Section I, Coop Method, includes a number of articles reviewed by year, subject index, suggested readings, code categories, and 293 annotations. Section II, Project Method, follows the above format and includes 100 annotations. The articles included in the bibliography can provide: (1) an historical perspective of the development of the coop and project methods of instruction, (2) a source of facts, experiences, and ideals for those concerned with the problems of initiating a coop or preparatory program, and (3) a selected classification and categorized body of information concerning the field of distributive education.

Frankel, Steven M., *et al*. Case Studies of Fifty Representative Work Education Programs. Santa Monica, Calif.: System Development Corp., 1973. (ED 081 997)

Information gathered from questionnaires, interviews, and on-site visitation is presented for 50 representative program sites in the United States at which work education projects are in operation. Methods of selecting the programs, the forms, and the results of data analysis are described in other project reports; this report provides instead a summary, or "overview," of what was occurring in each program. This overview includes a summary of each program's history, organization, goals, student and faculty composition, work environment, and mode of operation. Each report also discusses the success and problems of the program and methods used to deal with them, unusual features of the program or of the way it operates, and impressions of staff members who visited each site. Tables of pertinent data are included for each project.

Heerman, Barry. Cooperative Education in Community Colleges: A Sourcebook for Occupational and General Educators. San Francisco: Jossey-Bass, 1973. (ED 086 275)

This book was designed to serve several purposes: (1) to provide procedural guidelines for 2-year college educators who administer or who are in the process of planning a coop education program; (2) to serve as a sourcebook within courses in higher education, the community college, and vocational education or within formal coop education courses designed to prepare students for careers in cooperative education coordination of administration; and (3) to familiarize 2-year college educators with the broad purposes and operational dynamics of coop education in the community college. The author contends that coop education has great applicability to the traditional liberal arts curriculum and that it ought to be fashioned to serve the specific educational mission and characteristics of the community college. Especially emphasized is the notion of comprehensiveness in community college coop programs, that is, cooperative education should be integrated into all program areas and open to all students.

The book is organized into four parts. Part I traces the development of cooperative education and its associated philosophies, offers a model for a comprehensive program, and examines program potentials, alternatives, and pitfalls. Part II sets forth planning and organizational considerations and guidelines. Part III explains numerous operational subtleties that are crucial to an effective program, and Part IV contains sample letters and forms, a financial planning checklist, and an outline of California community colleges' coop program.

Knowles, Asa, and Associates. Handbook of Cooperative Education. San Francisco: Jossey-Bass Inc., 1972.

The general purposes of this handbook are as follows: (1) to acquaint educators and the general public with the philosophy, purposes, and advantages of the cooperative plan of education; (2) to inform educators about the organization and operation of coop programs and to acquaint them with the significance of the system in serving students who want more than the traditional offerings; (3) to acquaint employers, businesses, industries and health and government agencies with the advantages of cooperative education as a recruiting device; and to make clear the value of "coop trainees" as important sources of manpower, (5) to illustrate the advantages of cooperative education to students from lower income families; (6) to show that cooperative education, through its built in feature of relevance, has possible solutions to many of the problems of higher education in the years to come; (7) to show that coop education, once thought strictly vocational, effectively serves academic disciplines far beyond those considered technical or scientific; and (8) to show educators and employers how to make the most of cooperative education and how to combine their efforts to achieve a superior educational product.

Appendices include lists of the colleges and universities offering cooperative programs, of those institutions supported by the Cooperative Education Program, and of the fields of study offering cooperative experience. Also included are the cooperative calendars for each field and the cooperative agreement as used at Northeastern University.

Smiley, James and Budke, Wesley. (Comps.) Post-Secondary Cooperative Education Abstracts. Los Angeles, Calif.: University of California, ERIC Clearinghouse for Junior Colleges; Columbus, Ohio: Ohio State University, Center for Vocational and Technical Education, 1973. (ED 079 475)

To further development of cooperative education programs at the community/junior college level, the ERIC Clearinghouses on Junior Colleges and on Vocational and Technical Education jointly participated in a project to produce a procedural manual for cooperative education in the community colleges and a bibliography of post-secondary cooperative education abstracts.

This bibliography of abstracts was prepared to assist program planners and administrators in locating pertinent data on post-secondary cooperative education programs. In selecting entries for the bibliography, special care was taken to insure the inclusion of titles pertaining to the planning, development, and coordination of programs.

Wanat, John, ed., *et al*. Cooperative Industrial Education: All Purpose Manual. Jersey City, N.J.: Jersey City State College, Center for Occupational Education, 1973. (ED 096 387)

This manual for cooperative education coordinators and other coop participants provides the objectives of a coop program, duties and qualifications of the coordinator, and guidelines for getting a program started. The paper considers such basic questions as who participates, the selection of trainees, legal responsibilities, selecting training establishments, and evaluating on the job training. Also discussed are the job-related classes on campus, the formation and structure of an advisory committee, necessary budgetary allotment, the Vocational Industrial Clubs of America, evaluation of the coop program, and career education throughout elementary and secondary schooling.

Wenig, Robert E. and Wolansky, William D. Review and Synthesis of Literature on Job Training in Industry. Columbus, Ohio: Ohio State University, Center for Vocational and Technical Education, 1972. (ED 062 514)

It is imperative that vocational and technical educators study job training programs and policies in industry in order to develop curricula that will enable students to make a better transition from school to work. The purpose of this paper was to gather pertinent information about job training efforts in industry so that vocational and technical educators can make informed decisions aimed at improving job training programs. Securing information was limited to a review of pertinent literature elicited from particular agencies, organizations and societies, as well as from an ERIC search. The search showed a gap in available information about training in private industry. More specific objectives were: (1) to describe the state of the art of job training in industry, and (2) to determine the best possible linkages that can be developed between vocational and technical education and industry.

Major sections of the report include: (1) Factors Influencing Job Training in Industry, (2) The Description of Job Training In Industry, and (3) The Synthesis of Selected Job Training Programs in Industry. Points brought out in the study include: (1) Industry was mostly concerned about the increasing number of people-related problems, (2) Industry considers coop student training as the best type of vocational and technical education for skill development, and (3) Large industries are making great progress in improving job training through the use of the systems approach and better evaluation strategies.

Recommendations include: (1) better communication between industry and vocational/technical educators and between related disciplines to better determine needs and resources for solving worker-training problems, (2) study by educators of industry's job training programs and policies in order to alter curricula to help students make a better transition from school to work, and (3) research in the following areas: (a) how capable workers in various occupations and how other countries determine and meet job-training needs, (b) work-life patterns in various socio-economic groups to determine how best to train different people, and (c) more detailed, comprehensive and centralized information sources on job training in industry.

Work Experience Education: A Handbook for California Secondary Schools. Sacramento, Calif.: Calif. State Dept. of Education, 1972.

This handbook was designed to supply work experience education (WEE) program administrators with current, useful information needed for the effective program operation. "Work Experience Education," as used in California, covers three basic subdivisions: (1) Exploratory WEE, which provides an opportunity for the student to systematically sample and observe a variety of conditions of work with the purpose of ascertaining his suitability for the occupation he is exploring; (2) General WEE, which provides maturing experiences through supervised part-time employment as a part of the student's total school program (this work need not be related to the specific occupational objectives of the student); and (3) Vocational WEE, which provides cooperative training for entry into a specific occupation. The handbook contains a brief description and historical overview of the concept of work experience, together with guidelines for developing, operating, and evaluating WEE programs. It also includes a discussion of the laws and regulations affecting WEE. Appendices include a table of program standards for each of the three kinds of WEE, relevant excerpts from the California State Plan for Vocational Education, general instructions and guidelines for developing a five-year plan of operation for WEE, recommended requirements and a job description for work experience educators, sample outlines for in-class instruction, a list of relevant state laws and regulations, a directory of state agencies, sample forms for program management, and an annotated bibliography of related research (1965-1970).